

Test Report

No.: SDHGR121002512FT

Date: Nov.01, 2012

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ZHONG SHAN SHI SONGLIN FURNITURE CO. LTD
B BLOCK, JINLI INDUSTRIAL ZONEMSANXING ROAD, SANJIAO TOWN,
ZHONGSHAN CITY, GUANGDONG PROV., CHINA 528400

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

Sample Description : OFFICE CHAIR
Supplier Item No. : SL-B1
Manufacture : ZHONG SHAN SHI SONGLIN FURNITURE CO. LTD
Country of Destination : USA
Sample Receiving Date : Oct.15, 2012
Test Performing Date : Oct.15, 2012 to Nov.01, 2012

Test Result Summary

No.	Test(s) Requested	Result(s)	Comments
1	ANSI/BIFMA X5.1-2011	PASS	/

For further details, please refer to the following page(s)

Signed for and on behalf of
SGS-CSTC Co., Ltd.



Jack Yao
Approved signatory

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Test Conducted: ANSI/BIFMA X5.1 -2011 General –Purpose Office Chair – Tests, American National Standard for Office Furniture.

Type of chair: Type I and Type III

Test Items	Test Methods & Requirements	Test Results
Back Strength Test - Static - Type I – Clause 5.4 (Functional Load)	I No structural breakage or loss of serviceability when 200 lb (890 N) is applied for 1 min. applied to 90° from back at 16 in above the seat. If the back is less than 17.8 In, the load is applied at the top of the back.	PASS
Back Strength Test - Static - Type I – Clause 5.4 (Proof Load)	No sudden and major change in the structural integrity (Loss of serviceability is acceptable) when 300 lb (1334 N) is applied for 1 min. applied to 90° from back at 16 in above the seat. If the back is less than 17.8 in, The load is applied at the top of the back.	PASS
Back Strength Test - Static - Type II & III - Functional Load Clause 6.4.1	No loss of serviceability when 150 lb (667 N) is applied for 1 min. applied to 90° from back at 16 in above the seat. If the back is less than 17.8 In, the load is applied at the top of the back.	PASS
Back Strength Test - Static - Type II & III - Proof Load 6.4.2	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 1112N (250lbs.) is applied for 1 min. Applied 90° to the back at 16in. above the seat.	PASS
Base Test – Static Clause 7	No sudden and major change in the structural integrity under 11,120N (2500lbs.) compressions for 1 min. The weight is then removed and reapplied for 1 min. The center column may not touch the test platform during load applications.	PASS
Drop Test – Dynamic - Functional Load Clause 8.4.1	No loss of serviceability when 102kg (225lbs.) weight free falls from 6in. height to the center of the seat.	PASS
Drop Test Dynamic - Proof Load Clause 8.4.2	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 136kg (300lbs.) weight free falls from 6in. height to the center of the seat.	PASS
Swivel Test – Cyclic Clause 9	No loss of serviceability after 60,000cycles of rotation (360°) under a 113kg (250lbs.) load on the seat at its max. Height. Seat shall then withstand another 60,000cycles of rotation at its lowest seating position. Total 120,000cycles.	PASS
Tilt Mechanism Test – Cyclic – Type I & II Clause 10	No loss of serviceability after 300,000cycles under a 102kg (225lbs.) load to the center of the seat	PASS
Impact Test – Cyclic Clause 11.3	No loss of serviceability in 100,000cycles impact. A weight of 57kg (125lbs.) free falls onto the seat from 1.2 in. height.	PASS
Front Corner Load Ease Test –Cyclic – off Center Clause 11.4	No loss of serviceability after 20,000 cycles to both front seat corners from a 734N (165 lbs.) load positioned flush to both outer edges applied without impact for a total of 40,000 cycles Note: this test is done after “Impact test” on the same sample.	PASS

To be continued...

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Test Items	Test Methods & Requirements	Test Results
Stability Test – Rear Stability Clause 12.3.1 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.	PASS
Stability Test – Rear Stability Clause 12.3.2 for type I and II	Apply only to chairs with backrests greater than 200mm Load the chair with 13 disks, the chair shall not tip over.	PASS
Stability Test – Front Stability Clause 12.4	The chair is obstructed with a 13mm (½ in.) obstruction to the chair casters/legs. A downward load of 600N (135lbs.) 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.	PASS
Arm Strength Test Vertical – Static – Clause 13.4 (Functional Load)	No loss of serviceability when 750N (169lbs.) is applied for 1 min. The vertical load is uniformly applied along a 127mm (5in.) length at the apparent weakest point.	PASS
Arm Strength Test Vertical-Static Clause 13.4 (Proof Load)	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 1125N (253lbs.) is applied for 1 min. The vertical load is uniformly applied along a 127mm (5 in.) length at the apparent weakest point.	PASS
Arm Strength Test Horizontal –Static – Clause 14.4 (Functional Load)	No loss of serviceability when 445N (100lbs.) for 1 min. is applied horizontally outward to the armrest at the most forward point of the armrest.	PASS
Arm Strength Test Horizontal – Static – Clause 14.4 (Proof Load)	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when 667N (150lbs.) for 1 min. is applied horizontally outward to the armrest at the most forward point of the armrest.	PASS
Back Durability Test – Cyclic – Type I Clause 15	No loss of serviceability in 120,000 cycles with a 102kg (225lbs.) in the center of the seat and a 445N (100lbf.) 90° to the center of the chair back. For chairs with a back width greater than 406mm (16in.), test at the center of chair back for 80,000cycles and then 102mm (4in.) off-center 40,000 cycles, half to each side.	PASS
Back Durability Test – Cyclic – Type II & III Clause 16	No loss of serviceability in 120,000 cycles with a 102kg (225lbs.) in the center of the seat and a 334N (75lbf.) 90° to the center of the chair back. For chairs with a back width greater than 406mm (16in.), test at the center of chair back for 80,000cycles and then 102mm (4in.) off-center 40,000 cycles, half to each side.	PASS

To be continued...

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Test Items	Test Methods & Requirements	Test Results
Caster / Chair Base Durability Test For Pedestal Base Chair Clause 17.1	No loss of service after 2,000cycles over a hard surface with 3 obstacles and 98, 000cycles over a smooth hard surface without obstacles under a 113kg (250lbs.) load on the seat. Test stroke is 762mm (30in.) minimum. The caster should not separate under 22N (5lbs.) pulling force in line with the caster stem after the cycling test.	PASS
Caster / Chair Base Durability Test for Chairs with Legs (Clause 17.2)	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 113kg (250lbs.) load on the seat. Test stroke is 762mm (30in.) minimum. The caster should not separate under 22N (5lbs.) pulling force in line with the caster stem after the cycling test.	NA
Leg Strength Test - Front Load Clause 18.3 (Functional Load)	No loss of serviceability when a force of 334N (75lbf.) is applied to each front leg individually for 1 minute.	NA
Leg Strength Test- Front Load – Clause 18.3 (Proof Load)	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when a force of 503N (113lbf.) is applied to each front leg individually for 1 minute.	NA
Leg Strength Test -Side Load – Clause 18.4 (Functional Load)	No loss of serviceability when a force of 334N (75lbf.) is applied once to each front and rear leg individually for 1 minute.	NA
Leg Strength Test -Side Load Clause 18.4 (Proof Load)	No sudden and major change in the structural integrity (loss of serviceability is acceptable) when a force of 503N (113lbf.) is applied once to the front and rear leg individually for 1 minute.	NA
Footrest Static Load Test – Vertical Clause 19.3 (Functional Load)	Apply a force F1 of 445 N (100 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction. There shall be no loss of serviceability or sudden loss of footrest height.	NA
Footrest Static Load Test – Vertical Clause 19.4 (Proof Load)	Apply a force of 1334 N (300 lbf.) uniformly along a 102 mm (4 in.) distance along the footrest but not greater than 51 mm (2 in.) from the outside edge at the apparent weakest point of the structure for one (1) minute in the vertical downward direction. The load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	NA
Footrest Durability Test Clause 20	No loss of serviceability after 50,000cycles of a 890N (200lbf) load vertical along 102mm (4in.) length of the footrest at the apparent weakest point of the structure. Adjustable footrests that move more than 25 mm (1 in.) in the first 500 cycles shall be considered to have lost their serviceability.	NA

To be continued...

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Test Items	Test Methods & Requirements	Test Results
Arm Durability Test- Cyclic Clause 21	No structural breakage or loss of serviceability when a force of 400N (90lbf.) is applied to each arm at a 10° angle $\pm 1^\circ$ for 60,000cycles	PASS
Out Stop Tests for Chairs with Manually Adjustable Seat Depth Clause 22	Place a 70 kg (154 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	NA
Tablet Arm Static Load Test Clause 23	Apply a load of 68 kg (150 lb) at the apparent weakest position for 5 minutes and remove the load. No sudden and major change in the chair when the application of the load.	NA
Tablet Arm Load Ease Test – Cyclic Clause 24	No loss of serviceability to the unit after loading the tablet surface with a weight of 35 kg (77 lb) for a total 100,000 cycles.	NA

Remark:

1) Sample details:

Overall dimensions:	720 mm L x 655 mm W x 1095~1185 mm H
Weight	20.92kg

2) NA – Not applicable;

3) Type of chair:

Type I – tilt chair: a chair with a seat tilts with a counterbalancing force;

Type II – fixed seat angle, tilting backrest: a chair that provides a fixed angle with a tilting backrest;

Type III – fixed seat angle, fixed backrest: a chair that provides a fixed seat angle with a fixed backrest;

Photo Appendix



Sample as received – View 1



Sample as received – View 2

To be continued...

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Sample as received – View 3



Sample as received – View 4



Sample as received – View 5



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