



CLIENT: HUMANSCALE CORPORATION
220 Circle Drive
Piscataway, NJ 08854
Attn: Frank Lam

Test Report No: 177:008892

Date: December 30, 2007

The following sample was submitted by the Client as:

SAMPLE

DESCRIPTION: Cinto Stacking Chair with Arms and Casters Type III

DATE OF RECEIPT: December 5, 2007

TESTING PERIOD: December 5, 2007 to December 30, 2007

AUTHORIZATION: Client's Purchase Order # PO 51534, dated October 30, 2007

TEST(S) REQUESTED: ANSI/BIFMA X5.1-2002; "American National Standard for Office Furnishings - General Purpose Office Chairs - Tests".

TEST RESULTS: The submitted sample **complies** with applicable requirements of the referenced specification as summarized on Page 2 of this report.

PREPARED BY:

**SIGNED FOR AND ON BEHALF OF
SGS U.S. TESTING COMPANY INC.**

**Nikolay Kitov, Eng. Technician
Products Evaluation Laboratory**

**Dominick Lepore, Manager
Products Evaluation Laboratory**

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SUMMARY OF RESULTS

Test No.	Description	Results
6	Back Strength Test – Static – Type 2 and 3	Complies
8	Drop Test – Dynamic	Complies Note 1
11	Seating Durability Tests – Cyclic	Complies
12	Stability Test	Complies
13	Arm Strength Test – Vertical – Static	Complies
14	Arm Strength Test – Horizontal – Static	Complies
16	Back Durability Test – Cyclic – Type II and Type III	Complies
17	Base and Caster Test - Cyclic	Not Tested
18	Leg Strength Test – Front and Side Application	Complies
20	Arm Durability Test - Cyclic	Complies

Note 1: A test bag weighing 300 pounds was allowed to free-fall 6 inches to the center of the seat.
A front caster was broken.

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TEST PROCEDURES AND RESULTS

The following test program was conducted in a laboratory environment maintained at 70° F and 50% RH. Each sample was individually tested after conditioning in the test environment for at least 48 hours prior to conducting the test.

The complete detailed procedures may be found in the referenced specification and are only summarized herein. The results obtained for each of the applicable tests are presented in their respective section describing the procedure below:

6. Back Strength Test – Static – Type 2 and 3

Procedure

The chair was placed on a platform in its upright position, and the base was restrained from movement. Any adjustable features were set at normal use positions. The load device was positioned per spec.

A functional load of 150 lbf was applied 90° to the plane of the back for 1 minute and maintained until deflection was reasonably stabilized. The load was released and then a proof load of 250 lbf was applied.

Results

The chair was capable of withstanding the loads with no structural breakage or loss of serviceability.

8. Drop Test - Dynamic

Procedure

The chair was placed on the test surface with adjustable features set to their normal or midpoint positions as applicable. Casters were turned 90° to the base legs as viewed from above.

A test bag approximately 16 inches in diameter weighing 225 pounds was allowed to free-fall 6 inches to the center of the seat.

The weight of the bag was then increased to 300 pounds and the test repeated.

Results

The chair was capable of withstanding the impacts with no structural breakage or loss of serviceability.

A test bag weighing 300 pounds was allowed to free-fall 6 inches to the center of the seat.
A front caster was broken.

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11. Seating Impact Test - Cyclic

11.4 Seat Impact Procedure

The unit was secured to a test platform. All adjustments were set at midpoint (where applicable).

A test bag 16 inches (406mm) in diameter and weighing 125 pounds was attached to a cycling device, permitting a free-fall to the center of the seat from a height of 1 inch above the uncompressed surface of the seat.

The seat was subjected to 100,000 such impacts at a rate of 10 and 30 cycles per minute.

Results

No structural breakage or loss of serviceability was apparent.

11.6 Front Corner Load Ease Procedure

After the completion of 11.4, a load of 165 lbf was applied to each front corner of the chair, flush to each structural edge, through an 8" diameter loading device. The loads were applied in an alternating sequence for a total of 40,000 cycles, at a rate of between 10 and 30 cpm.

Results

No structural breakage or loss of serviceability was apparent.

12. Stability Test - Dynamic

Rear Stability

Procedure

The chair was placed on the test platform with the prescribed 173-pound weight strapped in the seat. All adjustments were set to provide the most unstable conditions for rearward stability.

A 1/2-inch obstruction was fixed against the rear legs and a rearward force was applied in the plane of the top of the weight until the total load was transferred to the rear supports.

Results

The unit complied with the minimum requirement of 35 lb. The front supports lifted off the platform at a rearward force of 73.8lbf.

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Front Stability

Procedure

A vertical load of 134.8 lbf was applied through a 200 mm disk, the center of which was 60 mm from the front center edge. A horizontal force of 4.5 lbf was applied at the same level of the plane of the top of the seat.

Results

The unit complies with this requirement.

13. Arm Strength Test - Vertical - Static

Procedure

The unit was placed on a test platform and clamped.

The vertical loads noted below were applied uniformly through a 5-inch long area along the width and length of one arm at the weakest point.

A functional load of 200 lbf was first applied for 1 minute after which a proof load of 300 lbf was applied for 1 minute.

Results

The arm was capable of supporting the loads applied with no structural breakage or loss of serviceability.

14. Arm Strength Test - Horizontal – Static

Procedure

The chair was placed on a test platform and clamped in position.

A loading device was attached so that a horizontal load is applied in the outward direction at the apparent weakest point.

A functional load of 100 lbf was applied for 1 minute and released.

A proof load of 150 lbf was then applied for 1 minute and released.

Results

The arm was capable of supporting the loads applied with no structural breakage or loss of serviceability.

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16. Back Durability Test - Cyclic - Type II and Type III

Procedure

The unit was placed on a test platform in an upright position and restrained from movement. A 225 lb dead load was placed on the seat.

If adjustable features were available, all adjustments were set at the midpoint of the normal range.

A cycling device was attached to the center of the back 16 inches above the seat. The cycling device was adjusted to apply a force of 75 lbs, 90° to the plane of the back. The device was cycled for 120,000 cycles at a rate of 10 to 30 cycles per minute.

Results

No structural breakage or loss of serviceability resulted.

18. Leg Strength Test – Front and Side Application

Front - Procedure

The chair was placed on its back clamped to the test platform by its rear legs.

A functional load of 75 pounds was applied 1-inch from the bottom of a leg in the rearward direction. The load was applied once to each front leg individually for 1 minute.

A proof load of 125 lbf was then applied as before to each front leg.

Results

There was no evidence of structural breakage or loss of serviceability from the application of both types of loads.

Side - Procedure

The chair was placed on its side clamped to the test platform by its side legs.

A functional load of 75 pounds was applied 1-inch from the bottom of a leg in the side to side direction. The load was applied once to each side leg (front and back) individually for 1 minute.

A proof load of 115 lbf was then applied as before to each side leg.

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Results

No failure that in any way would cause personal injury to the occupant resulted and no loss of serviceability was observed after the application of the 75 lbf functional and 125-lbf proof loading.

20. Arm Durability Test – Cyclic

Procedure

The chair was placed on a platform and clamped in its upright position. The seat was restrained from rotational movement. Height and width adjustable arms were set at their apparent weakest position, as applicable. A force of 90 lbf was applied simultaneously to each arm initially at a $10^{\circ} \pm 1^{\circ}$ angle using an arm loading device. The load was applied for 60,000 cycles at a rate of between 10 and 30 cpm.

Results

No failure that in any way would cause personal injury to the occupant resulted and no loss of serviceability was observed.

END OF REPORT