

Test Report No. 2014-10-14-002

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Customer	Scandinavian Business Seating AS Sundveien 7374 Røros, Norway		
Customer contact	Product & Brand Concept v/ Christian Eide Lodgaard		
Test item	Håg H09		
Test item ID:	H09 9220, 9230, 9320, 9330		
Serial No.	5110053777-5, 5110053777-6		
Order No.	2014-10-14-002		
Date of receipt.	2014-10-24		
Testing commenced / finished	2014-10-28 / 2015-03-11		
Performing Laboratory.	Testlab SB Seating Røros, Scandinavian Business Seating AS Sundveien 7374 Røros, Norway +47 72 40 72 00		
Accredited by.	Norsk Akkreditering Fetveien 99 2007 Kjeller +47 64 84 86 00	Valid from: 2013-04-18 Registration No.: Test 275	Valid to: 2018-04-18
Tested according to.	ANSI/BIFMA X5.1-2011	Type I/III	
Test result.	The test item passed the test specifications		
Tested by:	Approved by:		
2015-03-17	John Anders Spencer Quality technician	2015-03-17	Christian Andersson Product tester
Date	Name Position	Date	Name Position
	Sign.		Sign.
Additional information. The test results refer only to the sample tested.			
Abbreviations	P =Passed F =Failed NA =Not applicable NT =Not tested		

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Estimated uncertainty of stability measurement

Measurement	Description	Uncertainty (N)
12.3.1	Rear stability	9,12
12.3.2	Rear stability type I & II chairs	6,84
12.4.2	Front stability	3,37

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Brief description of the test item upon receipt.

Håg H09

Office swivel work chair with tilt mechanism

- 50mm castors from Jenp You
- 5 star aluminium base
- Gas spring "type A" from Stabilus
- Seat mechanism with seat depth adjustment lever, Seat height adjustment lever, tilt lock by lever, rear tilt tension adjustment by hand wheel and front tilt tension adjustment by lever.
- Armrests adjustable in width by lever, height by button on the side of the armrest body, and tilt angle by button on underside of the armrest top.
- Fixed backrest with height adjustable lumbar support and neck rest (only high backrests).



Remarks:

There were no remarks upon receipt

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Standard: ANSI/BIFMA X5.1-2011 General-Purpose Office Chairs - Tests

This standard defines specific tests, laboratory equipment, conditions of test, and recommended minimum levels to be used in the test and evaluation of the safety, durability, and structural adequacy of general-purpose office chairs.

Requirement ANSI/BIFMA X5.1-2011

1 Scope

The standard defines specific tests, the laboratory equipment that may be used, the conditions of tests, and the minimum acceptance levels to be used in evaluating general-purpose office chairs. See test specification for more.

2 Definitions

See test specification

3 General

See test specification

4 Types of chairs

See table I – Test Guide by Chair Type below
See test specification for more.

Remarks

The chair was tested as Type I/III due to the lockable tilt mechanism



Figure 4a - Type I - Tilting Chair



Figure 4b - Type II - Fixed seat angle, tilting backrest

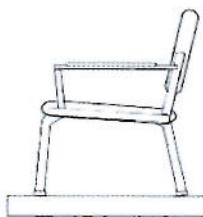


Figure 4c - Type III - Fixed seat angle, fixed backrest
Types of Chairs

TABLE 1 – Test Guide by Chair Type

Section Number	Description	Type I	Type II	Type III
5	Backrest Strength Test - Static - Type I	X		
6	Backrest Strength Test - Static - Type II and III		X	X
7	Base Test - Static	X	X	X
8	Drop Test - Dynamic	X	X	X
9	Swivel Test - Cyclic	X	X	X
10	Tilt Mechanism Test - Cyclic	X	X	
11	Seating Durability Test - Cyclic	X	X	X
12	Stability Tests	X	X	X
13	Arm Strength Test - Vertical - Static	X	X	X
14	Arm Strength Test - Horizontal - Static	X	X	X
15	Backrest Durability Test - Cyclic - Type I	X		
16	Backrest Durability Test - Cyclic - Type II and Type III		X	X
17	Caster/Chair Base Durability Test - Cyclic	X	X	X
18	Leg Strength Test - Front and Side Application	X	X	X
19	Footrest Static Load Test - Vertical	X	X	X
20	Footrest Durability Test - Vertical - Cyclic	X	X	X
21	Arm Durability Test - Cyclic	X	X	X
22	Out Stop Test for Chairs with Manually Adjustable Seat Depth	X	X	X
23	Tablet Arm Chair Static Load Test	X	X	X
24	Tablet Arm Chair Load Ease Test - Cyclic	X	X	X

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Section	Requirements / Remarks	Result
5	Backrest Strength Test - Static - Type I	
5.1	Applicability This backrest strength test shall be performed on Type I chairs. For chairs with tilt locks, locking the chair changes the chair type (See Section 4) and must also be tested according to Section 6 in the upright locked position. An additional chair may be used for the Section 6 testing. Note: This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
5.2	Purpose of Test The purpose of this test is to evaluate the ability of the chair to withstand stresses such as those caused by the user exerting a rearward force on the backrest of the chair. Functional Load 890 N (200 lbf.) one (1) minute. Proof Load 1334 N (300 lbf.) one (1) minute.	
5.5	Acceptance Level Functional Load There shall be no loss of serviceability to the chair. Proof Load There shall be no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.	P
	Remarks See Picture no 5-1, 5-2 After functional test there was no visible damage and all functions were OK During the loading up to 1334N the fastening of the backrest started slipping at approx. 1200N, but the slipping stopped, and the test continued to load up to 1334N(see picture). The 1 min holding time was also done. This deformation of the backrest is considered not to be a sudden and major change of the chair, so the test is passed.	
6	Backrest Strength Test - Static - Type II & III	
6.1	Applicability This backrest strength test shall be performed on Type II and III chairs. Note: This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
6.2	Purpose of Test The purpose of this test is to evaluate the ability of the chair to withstand stresses such as those caused by the user exerting a rearward force on the backrest of the chair. Functional Load 667 N (150 lbf.) one (1) minute Proof Load 1112 N (250 lbf.) one (1) minute.	
6.5	Acceptance Level Functional Load A functional load applied once shall cause no loss of serviceability to the chair. Proof Load 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
	Remarks See picture no6	
7	Base Test – Static	
7.1	Applicability The test shall be performed on all pedestal bases.	
7.2	Purpose of Test The purpose of this test is to evaluate the ability of a pedestal base to withstand excessive vertical forces. Test Procedures 11120 N (2500 lbf.) one (1) minute x 2.	
7.5	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 applications.	P
	Remarks See picture no7 Breaking point at approx. 19 000N	

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Section	Requirements / Remarks	Result
8	Drop Test – Dynamic	
8.1	Applicability This test applies to all chair types.	
8.2	Purpose of Test The purpose of this test is to evaluate the ability of the chair to withstand heavy and abusive impact forces on the seat. Functional Load 102 kg (225 lb.) falling 152 mm (6 in.). For chairs with seat height adjustment features, set height to its lowest position and repeat Proof Load Repeat functional load procedure but increase weight of test bag to 136 kg (300 lb.).	P
8.5	Acceptance Level Functional Load There shall be no loss of serviceability. Proof Load There shall be no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.	
	Remarks See picture no8	
9	Swivel Test – Cyclic	
9.1	Applicability This test applies to all chair types with a swivel seat.	
9.2	Purpose of test The purpose of this test is to evaluate the ability of the chair to withstand stresses and wear of repeated swivelling. Test Procedure 113 kg (250 lb.) load, 51-64 mm forward of the rotational axis. The chair shall swivel for a total of 120,000 cycles of 360°.	P
9.5	Acceptance Level There shall be no loss of serviceability.	
	Remarks See picture no9	
10	Tilt Mechanism Test – Cyclic	
10.1	Applicability This test shall be performed on Type I and Type II chairs with tilting backrests.	
10.2	Purpose of test The purpose of this test is to evaluate the ability of the tilt mechanism to withstand the fatigue stresses and wear caused by repeated tilting. Test Procedure 102 kg (225 lb.) for a total of 300,000 cycles.	P
10.5	Acceptance Level There shall be no loss of serviceability to the tilt mechanism.	
	Remarks See picture no10	

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Section	Requirements / Remarks	Result
11	<p>Seating Durability Tests – Cyclic Note: This is a two-part test. The impact test and front corner load-ease tests must be run sequentially for this evaluation.</p>	
11.1	<p>Applicability These tests apply to all chair types.</p>	
11.2	<p>Purpose of test The purpose of these tests is to evaluate the ability of chairs to withstand fatigue stresses and wear caused by downward vertical force(s) on the seat.</p>	
11.3	<p>Impact Test 57 kg (125 lb.) test bag falling 30 mm (1.2 in.) for a total of 100,000 cycles.</p>	P
11.4	<p>Front Corner Load-Ease Test – Cyclic – Off-centre 734 N (165 lbf) force for a total of 40,000 alternating cycles.</p>	P
11.5	<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>Remarks See picture no 11-1, 11-2</p>	
12	<p>Stability Tests</p>	
12.1	<p>Applicability The stability tests shall be performed on all types of chairs. Note: Rearward stability tests apply only to chairs with backrests greater than 200 mm (7.9 in. in height as measured with the BIFMA CMD.</p>	
12.2	<p>Purpose of test The purpose of these tests is to evaluate the front and rear stability of chairs.</p>	
12.3	<p>Rear Stability</p>	
12.3.1	<p>Rear Stability Test for Type III Chairs</p>	P
12.3.1.3	<p>Acceptance level The chair shall not tip over.</p>	
12.3.2	<p>Rear Stability Test for Type I and II Chairs</p>	P
12.3.2.3	<p>Acceptance level The chair shall not tip over.</p>	
12.4	<p>Front Stability</p>	P
12.4.4	<p>Acceptance Level The chair shall not tip over as the result of the force application.</p>	
	<p>Remarks See picture no 12-1, 12-2, 12-3 12.3.1: Calculated requirement: 122N, Tipping point at: 196N (model 9330) 12.3.2: Requirement: >13 ISO-discs, Tipping point at: 14,5 ISO-discs (model 9330) 12.4: Requirement: 20N horizontal force, Tipping point at: 53N (model 9220)</p>	
13	<p>Arm Strength Test - Vertical – Static</p>	
13.1	<p>Applicability This test applies to all chairs with arms.</p>	
13.2	<p>Purpose of test The purpose of the test is to evaluate the ability of a chair and arm to withstand stresses caused by applying vertical forces on the arm(s).</p>	
	<p>Functional Load 750 N (169 lbf), one (1) minute.</p>	
	<p>Proof Load 1125 N (253 lbf), one (1) minute.</p>	
13.5	<p>Acceptance Level 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
	<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>Remarks See picture no 13</p>	

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Section	Requirements / Remarks	Result
14	Arm Strength Test - Horizontal - Static	
14.1	Applicability This test applies to all chairs with arms.	
14.2	Purpose of Test The purpose of this test is to evaluate the ability of the chair to withstand stresses caused by applying outward forces to the arm(s).	
	Functional Load 445 N (100 lbf.), one (1) minute.	
	Proof Load 667 N (150 lbf.), one (1) minute.	
14.5	Acceptance Level Functional Load A functional load applied once shall cause no loss of serviceability. 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
	Remarks See picture no 14	
15	Backrest Durability Test - Cyclic - Type I	
15.1	Applicability This test shall be performed on Type I Tilting chairs. Note: This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
15.2	Purpose of test The purpose of this test is to evaluate the ability of the chairs to withstand fatigue stresses and wear caused by rearward force on the backrest of the chair.	
	Test procedure 102 kg (225 lb.) load on seat, 445 N (100 lbf.) force to the back for a total of 120.000 cycles	
15.5	Acceptance Level There shall be no loss of serviceability.	P
	Remarks See picture no 15-1, 15-2 Backrest width measured at more than 406mm which means 80 000 cycles in center of backrest, and 20 000 cycles on each side.	
16	Backrest Durability Test - Cyclic - Type II and III	
16.1	Applicability This test shall be performed on Type II and III chairs. Note: This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
16.2	Purpose of Test The purpose of this test is to evaluate the ability of the chairs to withstand fatigue stresses and wear caused by rearward force on the backrest of the chair.	
	Test procedure 102 kg (225 lb.) load on seat, 334 N (75 lbf.) force to the back for a total of 120.000 cycles	
16.5	Acceptance Level There shall be no loss of serviceability.	P
	Remarks See picture no 16 Backrest width measured at more than 406mm which means 80 000 cycles in center of backrest, and 20 000 cycles on each side.	

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Section	Requirements / Remarks	Result
17 17.1 17.1.1 17.1.2 17.1.5	<p>Caster/Chair Base Durability Test – Cyclic</p> <p>Caster/Chair Base Durability Test for Pedestal Base Chairs</p> <p>Applicability This test applies to pedestal base chairs with casters.</p> <p>Purpose of Test The purpose of this test is to evaluate the ability of the chair base and casters to withstand fatigue stresses and wear caused by moving the chair back and forth.</p> <p>Test procedure 113 kg (250 lb.) load on seat. For a total of 100.000 cycles</p> <p>Acceptance Level</p> <p>Durability cycling There shall be no loss of serviceability.</p> <p>Caster Retention No part of the caster shall separate from the chair as a result of the application of the 22 N (5 lbf.) force.</p> <p>Remarks See picture no 17</p>	P
17.2 17.2.1 17.2.2 17.2.5	<p>Caster/Chair Frame Durability Test for Chairs with Legs</p> <p>Applicability This test applies to chairs with legs and casters. This test is not applicable to chairs with glide/caster combinations (i.e., those having two glides and two casters).</p> <p>Purpose of Test The purpose of this test is to evaluate the ability of the chair frame and casters to withstand fatigue stresses and wear caused by moving the chair back and forth.</p> <p>Test procedure 113 kg (250 lb.) load on seat. For a total of 100.000 cycles</p> <p>Acceptance Level</p> <p>Durability cycling There shall be no loss of serviceability.</p> <p>Caster Retention No part of the caster shall separate from the chair as a result of the application of the 22 N (5 lbf.) force.</p> <p>Remarks</p>	NA
18 18.1 18.2 18.3 18.4 18.5	<p>Leg Strength Test - Front and Side Application</p> <p>Applicability This test applies to all chairs without pedestal bases.</p> <p>Purpose of Test The purpose of this test is to evaluate the ability of legs to withstand horizontal side and frontal forces.</p> <p>Front Load Test</p> <p>Functional load 334 N (75 lbf.), one (1) minute.</p> <p>Proof load 503 N (113 lbf.), one (1) minute.</p> <p>Side Load Test</p> <p>Functional load 334 N (75 lbf.), one (1) minute.</p> <p>Proof load 503 N (113 lbf.), one (1) minute.</p> <p>Acceptance Level - Front and Side Load Tests</p> <p>Functional Load Functional load(s) applied once in each direction shall cause no loss of serviceability.</p> <p>Proof Load Proof load(s) applied once each direction shall cause no sudden and major change in the structural integrity of the chair. Loss of serviceability is acceptable.</p> <p>Remarks</p>	NA

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Section	Requirements / Remarks	Result
19	Footrest Static Load Test – Vertical	
19.1	Applicability The footrest static load test shall be performed on all chairs with a footrest feature and a seat height equal to or greater than (or can be adjusted to) 610 mm (24 in.).	
19.2	Purpose of Test The purpose of this test is to evaluate the ability of the footrest to withstand static loading stresses.	
19.4.1	Static Load Test – Functional Load 445 N (100 lbf.), one (1) minute. Or 445 N (100 lbf.), one (1) minute plus 2 x 445 N (100 lbf.), one (1) minute	
19.4.2	Acceptance level There shall be no loss of serviceability or sudden loss of footrest height.	NA
19.4.3	Static Load Test – Proof Load 1334 N (300 lbf.), one (1) minute.	
19.5	Acceptance level The load applied once shall cause no sudden and major change in the structural integrity of the unit. Loss of serviceability is acceptable.	
	Remarks	
20	Footrest Durability Test - Vertical – Cyclic	
20.1	Applicability The footrest durability test shall be performed on all chairs with a footrest feature.	
20.2	Purpose of Test The purpose of this test is to evaluate the ability of the footrest to withstand stresses that occur as a result of repetitive loading.	
	Test procedure 890 N (200 lbf.) for a total of 50,000 cycles.	
20.5	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.	NA
	Remarks	
21	Arm Durability Test – Cyclic	
21.1	Purpose of test The purpose of this test is to evaluate the ability of the chair armrests to withstand stresses that occur as a result of repetitive loading that can be imposed on the armrest structure. Loading of this type is the result of using the armrests as a support when getting into or out of the chair.	
	Test procedure 400 N (90 lbf.) for a total of 60,000 cycles.	
21.4	Acceptance level There shall be no loss of serviceability to the chair.	P
	Remarks See picture no21	
22	Out Stop Tests for Chairs with Manually Adjustable Seat Depth	
22.	Purpose of Test The purpose of this test is to evaluate the ability of the seat slide out stops to withstand excessive impact forces that may result from user adjustment of the seat depth. Note: This test does not apply to chairs where seat depth adjustments must occur with the user out of the chair.	
	Test procedure 74 kg (163 lb.) mass on seat, 25 kg (55 lb.) mass pulling the seat forward using a pulley for a total of 25 cycles.	
22.4	Acceptance Level There shall be no loss of serviceability to the unit.	P
	Remarks See picture no22	

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Section	Requirements / Remarks	Result
23 23.1	<p>Tablet Arm Chair Static Load Test</p> <p>Purpose of Test The purpose of this test is to evaluate the ability of the unit equipped with a tablet arm or other attached auxiliary writing/laptop surface to withstand stresses caused by vertical loading.</p> <p>Test procedure 68 kg. (150 lb.), one (1) minute</p>	NA
23.4	<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 allow egress from the unit; other losses of serviceability are acceptable.</p> <p>Remarks</p>	
24 24.1	<p>Tablet Arm Chair Load Ease Test – Cyclic</p> <p>Purpose of Test The purpose of this test is to evaluate the durability of the tablet arm chair to withstand cyclic loading of the tablet.</p> <p>Test procedure 343 N (77 lbf.), for at total of 100,000 cycles.</p>	NA
24.4	<p>Acceptance Level There shall be no loss of serviceability to the chair and/or tablet arm.</p> <p>Remarks</p>	

End of test report.

Annex I – Photo documentation



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