

# Test Report

**Test Report No. 2013-09-30-005**

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<b>Customer</b>	Scandinavian Business Seating AS Sundveien 7374 Røros, Norway		
<b>Customer contact</b>	Product & Brand Concept v/ Christian Eide Lodgaard		
<b>Test item</b>	HÅG H04 Communication		
<b>Test item ID:</b>	H04 4472		
<b>Serial No.</b>	1110377043-2		
<b>Order No.</b>	2013-09-30-005		
<b>Date of receipt.</b>	2013-11-15		
<b>Testing commenced / finished</b>	2013-12-19 / 2014-03-14		
<b>Performing Laboratory.</b>	Scandinavian Business Seating AS Sundveien 7374 Røros, Norway +47 72 40 72 00		
<b>Accredited by.</b>	Norsk Akkreditering Fetveien 99 2007 Kjeller +47 64 84 86 00	Valid from: 2013-04-18 Registration No.: 275	Valid to: 2018-04-18
<b>Tested according to.</b>	ANSI/BIFMA X5.1-2011	Type1	
<b>Test result.</b>	The test item passed the test specifications		
<b>Tested by:</b>	<b>Approved by:</b>		
2014-04-08	John Anders Spencer	2014-04-08	Torbjørn Bendixvold
<b>Date</b>	<b>Name</b>	<b>Date</b>	<b>Name</b>
	<b>Sign.</b>		<b>Sign.</b>
<b>Additional information.</b> The test results refer only to the sample tested. The chair is manufactured with parts from the daily production.			
<b>Abbreviations</b>	<b>P</b> =Passed <b>F</b> =Failed <b>NA</b> =Not applicable <b>NT</b> =Not tested		

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Test equipment.	ID.	Last calibration.	Next calibration.
Static test machine	TL-5003	NA	NA
Universal test machine	TL-5004	NA	NA
Drop test machine	TL-5007	NA	NA
Swivel test machine	TL-5010	NA	NA
Seat- and Backrest test machine	TL-5005-5006	NA	NA
Side to Side test machine	TL-5008	NA	NA
Stability test machine	TL-5012	NA	NA
Castor test machine	TL-5015	NA	NA
Load cell	TL-1236	2013-03-19	2014-04-19
Chair measuring device	TL-1201	2013-06-11	2014-06-11
Height gage	TL-1205	2012-10-26	2020-10-26
Measuring tape	TL-1203, 1247	2012-10-24	2022-10-24
Form-fitting device static	TL-1246	2012-10-10	2017-10-10
Load cell UTM 20kN	TL-1234	2013-03-19	2014-04-19
Drop test bag	TL-1223	2013-06-11	2014-06-11
Weight bags 57/102/136kg	TL-1100-1112	2013-06-11	2014-06-11
Weight holder	TL-1125	2013-06-11	2014-06-11
Weight discs	TL-1113-1124	2013-06-11	2014-06-11
Load cell backrest	TL-1227,1229	2013-03-20	2014-04-20
Load cell seat	TL-1226,1228	2013-03-20	2014-04-20
Weight holder	TL-1095-1099	2013-06-11	2014-06-11
Weight discs	TL-1001-1056	2013-06-11	2014-06-11
Smaller seat loading pad	TL-1216-1217	2012-05-23	2022-05-23
Load cells Side-to side	TL-1230-1231	2013-03-19	2014-04-19
Armrest loading pads	TL-1257-1258	2013-02-25	2023-02-25
Form-fitting device cyclic	TL-1249	2012-10-29	2017-10-29
Induk Digital force gauge	TL-1239	2013-03-19	2014-04-19
Front stability loading disc	TL-1207	2013-06-11	2014-06-11
Front stability loading fixture	TL-1208	2013-06-11	2014-06-11
Weight holder	TL-1209	2013-06-11	2014-06-11
13 link chain	TL-1210	2013-06-11	2014-06-11
Form fitting device	TL-1249	2012-10-29	2017-10-29

**Estimated uncertainty of stability measurement**

Measurement	Description	Uncertainty (N)
12.3.1	Rear stability Type III	5,00
12.3.2	Rear stability Type I/II	2,23
12.4.2	Front stability	1,50

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**Brief description of the test item upon receipt.**

**H04 4472**

Visitors swivel chair with plastic seat and backrest with upholstery.

Aluminium base, seat mechanism and back stem.

Armrests made of aluminium body and plastic top.

Seat height adjustable by lever and gas spring. Seat tilting mechanism.



**Remarks:**

The chair was received and inspected without remarks



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

**Remarks:**

The chair was tested as a Type I chair



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
<b>5</b>	<b>Backrest Strength Test - Static - Type I</b>	<b>P</b>
<b>5.1</b>	<b>Applicability</b> 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. <b>Note:</b> This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
<b>5.2</b>	<b>Purpose of Test</b> 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.	
	<b>Remarks</b> See pic no5	
<b>6</b>	<b>Backrest Strength Test - Static - Type II &amp; III</b>	<b>NA</b>
<b>6.1</b>	<b>Applicability</b> This backrest strength test shall be performed on Type II and III chairs. <b>Note:</b> This test does not apply to chairs with backrest height less than 200 mm (7.9 in.).	
<b>6.2</b>	<b>Purpose of Test</b> 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.	
	<b>Remarks</b>	
<b>7</b>	<b>Base Test – Static</b>	<b>P</b>
<b>7.1</b>	<b>Applicability</b> The test shall be performed on all pedestal bases.	
<b>7.2</b>	<b>Purpose of Test</b> The purpose of this test is to evaluate the ability of a pedestal base to withstand excessive vertical forces.	
	<b>Remarks</b> Breaking point at 17,8kN See pic no7	
<b>8</b>	<b>Drop Test – Dynamic</b>	<b>P</b>
<b>8.1</b>	<b>Applicability</b> This test applies to all chair types.	
<b>8.2</b>	<b>Purpose of Test</b> The purpose of this test is to evaluate the ability of the chair to withstand heavy and abusive impact forces on the seat.	
	<b>Remarks</b> See pic no8	
<b>9</b>	<b>Swivel Test – Cyclic</b>	<b>P</b>
<b>9.1</b>	<b>Applicability</b> This test applies to all chair types with a swivel seat.	
<b>9.2</b>	<b>Purpose of test</b> The purpose of this test is to evaluate the ability of the chair to withstand stresses and wear of repeated swivelling.	
	<b>Remarks</b> See pic no9	

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Section	Requirements / Remarks	Result
10 10.1 10.2	<b>Tilt Mechanism Test – Cyclic</b> <b>Applicability</b> This test shall be performed on Type I and Type II chairs with tilting backrests. <b>Purpose of test</b> 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.	<b>P</b>
	<b>Remarks</b> See pic no 10	
11 11.1 11.2 11.3 11.4	<b>Seating Durability Tests – Cyclic</b> <b>Note:</b> This is a two-part test. The impact test and front corner load-ease tests must be run sequentially for this evaluation. <b>Applicability</b> These tests apply to all chair types. <b>Purpose of test</b> 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. <b>Impact Test</b> <b>Front Corner Load-Ease Test – Cyclic – Off-centre</b>	<b>P</b> <b>P</b>
	<b>Remarks</b> See pic no 11-1 and 11-2	
12 12.1 12.2 12.3 12.3.1 12.3.2 12.4	<b>Stability Tests</b> <b>Applicability</b> The stability tests shall be performed on all types of chairs. <b>Note:</b> Rearward stability tests apply only to chairs with backrests greater than 200 mm (7.9 in. in height as measured with the BIFMA CMD). <b>Purpose of test</b> The purpose of these tests is to evaluate the front and rear stability of chairs. <b>Rear Stability</b> <b>Rear Stability Test for Type III Chairs</b> <b>Rear Stability Test for Type I and II Chairs</b> <b>Front Stability</b>	<b>NA</b> <b>P</b> <b>P</b>
	<b>Remarks</b> Rear stability: Tipping point > 14 discs Front stability: Tipping point at 115N See pic no 12-1 and 12-2	
13 13.1 13.2	<b>Arm Strength Test - Vertical – Static</b> <b>Applicability</b> This test applies to all chairs with arms. <b>Purpose of test</b> 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).	<b>P</b>
	<b>Remarks</b> See pic no 13	
14 14.1 14.2	<b>Arm Strength Test - Horizontal – Static</b> <b>Applicability</b> This test applies to all chairs with arms. <b>Purpose of Test</b> 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).	<b>P</b>
	<b>Remarks</b> See pic no 14	

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Section	Requirements / Remarks	Result
15 15.1  15.2	<b>Backrest Durability Test - Cyclic - Type I</b> <b>Applicability</b> This test shall be performed on Type I Tilting chairs. <b>Note:</b> This test does not apply to chairs with backrest height less than 200 mm (7.9 in.). <b>Purpose of test</b> 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.	<b>P</b>
	<b>Remarks</b> See pic no 15	
16 16.1  16.2	<b>Backrest Durability Test - Cyclic - Type II and III</b> <b>Applicability</b> This test shall be performed on Type II and III chairs. <b>Note:</b> This test does not apply to chairs with backrest height less than 200 mm (7.9 in.). <b>Purpose of Test</b> 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.	<b>NA</b>
	<b>Remarks</b>	
17 17.1 17.1.1 17.1.2	<b>Caster/Chair Base Durability Test – Cyclic</b> <b>Caster/Chair Base Durability Test for Pedestal Base Chairs</b> <b>Applicability</b> This test applies to pedestal base chairs with casters. <b>Purpose of Test</b> 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.	<b>P</b>
	<b>Remarks</b> See pic no 17	
17.2 17.2.1  17.2.2	<b>Caster/Chair Frame Durability Test for Chairs with Legs</b> <b>Applicability</b> 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). <b>Purpose of Test</b> 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.	<b>NA</b>
	<b>Remarks</b>	
18 18.1  18.2  18.3 18.4	<b>Leg Strength Test - Front and Side Application</b> <b>Applicability</b> This test applies to all chairs without pedestal bases. <b>Purpose of Test</b> The purpose of this test is to evaluate the ability of legs to withstand horizontal side and frontal forces. <b>Front Load Test</b> <b>Side Load Test</b>	<b>NA</b>
	<b>Remarks</b>	

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Section	Requirements / Remarks	Result
19	<b>Footrest Static Load Test – Vertical</b>	NA
19.1	<b>Applicability</b> 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	<b>Purpose of Test</b> The purpose of this test is to evaluate the ability of the footrest to withstand static loading stresses.	
	<b>Remarks</b>	
20	<b>Footrest Durability Test - Vertical – Cyclic</b>	NA
20.1	<b>Applicability</b> The footrest durability test shall be performed on all chairs with a footrest feature.	
20.2	<b>Purpose of Test</b> The purpose of this test is to evaluate the ability of the footrest to withstand stresses that occur as a result of repetitive loading.	
	<b>Remarks</b>	
21	<b>Arm Durability Test – Cyclic</b>	P
21.1	<b>Purpose of test</b> 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.	
	<b>Remarks</b> See pic no21	
22	<b>Out Stop Tests for Chairs with Manually Adjustable Seat Depth</b>	NA
22.1	<b>Purpose of Test</b> 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. <b>Note:</b> This test does not apply to chairs where seat depth adjustments must occur with the user out of the chair.	
	<b>Remarks</b>	
23	<b>Tablet Arm Chair Static Load Test</b>	NA
23.1	<b>Purpose of Test</b> 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.	
	<b>Remarks</b>	
24	<b>Tablet Arm Chair Load Ease Test – Cyclic</b>	NA
24.1	<b>Purpose of Test</b> The purpose of this test is to evaluate the durability of the tablet arm chair to withstand cyclic loading of the tablet.	
	<b>Remarks</b>	

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## Annex I – Photo documentation



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