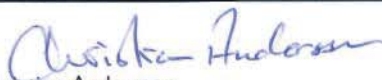
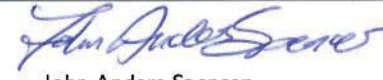


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Customer	Scandinavian Business Seating AS Sundveien 7374 Røros, Norway		
Customer contact	Product & Brand Concept v/ Christian Eide Lodgaard		
Test item	HÅG Sofi		
Test item ID:	SoFi 7210, 7320		
Serial No.	5110016541-1, 5110016541-2		
Order No.	2013-06-04-004		
Date of receipt.	2014-05-14		
Testing commenced / finished	2014-05-30 / 2014-11-10		
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.	EN1335-1 2000 EN1335-2 2009 EN1335-3 2009		
Test result.	The test item passed the test specifications as a type A chair.		
Tested by:		Approved by:	
2014-12-22	Christian Andersson	2014-12-22	John Anders Spencer
Date	Name	Sign.	Date Name Sign.
Additional information.			
The test results refer only to the sample tested. The temperature during testing has been within the specified range 15-25 degrees Celsius. Model 7210 and 7320 have been tested according to EN1335-1:2000. Model 7320 was measured with both standard and premium armrests. Only model 7320 with premium armrests, have been tested according to EN1335-2:2009 and EN1335-3:2009			
Abbreviations	P	=Passed	
	F	=Failed	
	NA	=Not applicable	
	NT	=Not tested	

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Estimated uncertainty of measurement		
Measurement	Description	Uncertainty (mm)
<i>a</i>	Seat height	4,01
<i>b</i>	Seat depth	3,82
<i>c</i>	Depth of seat surface	1,24
<i>d</i>	Seat width	3,53
<i>e</i>	Inclination of seat surface	2,25
<i>f</i>	Height of the back supporting point S above the seat surface	9,76
<i>g</i>	Height of the back pad	3,79
<i>h</i>	Height of the upper edge back rest above the seat surface	3,38
<i>i</i>	Back rest width	1,58
<i>k</i>	Horizontal radius of back rest	NA
<i>l</i>	Back rest inclination adjustment range	1,72
<i>n</i>	Length of the useful area of the arm rest	2,45
<i>o</i>	Width of the useful area of the arm rest	1,34
<i>p</i>	Height of the useful area of the arm rest above the seat	2,44
<i>q</i>	Distance from the front of the useful area of the arm rests to the front edge of the seat	4,38
<i>r</i>	Clear width between the useful area of the arm rests	4,84
<i>s</i>	Maximum offset of the underframe	1,58
<i>t</i>	Stability dimension	3,29

Estimated uncertainty of stability measurement (swivel chairs)		
Measurement	Description	Uncertainty (N)
7.1.1	Front edge overturning	4,51
7.1.2	Forwards overturning	3,37
7.1.4	Sideways overturning for chairs without armrests	3,49
7.1.5	Sideways overturning for chairs with armrests	2,43
7.1.6	Rearwards overturning for chairs without back rest inclination	3,91
7.1.7	Rearwards overturning for chairs with back rest inclination	6,84

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Brief description of the test item upon receipt.

Håg SoFi

Office work chair, model range HÅG SoFi with armrests(std or premium), optional without armrests, aluminium star base, 65mm hard or soft castors.

Two different backrest heights, 73XX high back and 72XX medium back.

- adjustable seat height using a gas cylinder from Stabilus, in compliance with DIN4550.
- seat mechanism made of steel and aluminium with tilt and lock function.
- seat depth adjustable by lever on the seat which moves the backrest horizontally.
- adjustable tilt resistance.
- seat tilt lockable in one position.
- height adjustable lumbar support.
- armrests adjustable in height and width.
- arm rest made of plastic (standard) or aluminium (premium) with a soft plastic top.
- upholstered seat and backrest.
- castor manufacturer: JENP JOU.



Model 7320 std. arm rests



Model 7320 std. arm rests



Model 7210



Model 7210



Model 7320 Premium. arm rests



Model 7320 Premium. arm rests

Remarks:

There were no remarks upon receipt

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Standard: **EN 1335-1:2000 – Dimensions**

Classification according to the type classes following EN 1335-1:2000

Dimensions	(x)	Adjustability	Type A			Measured value	Result	
			(-) allow.	Min. ^{a)}	Max. ^{a)}			(+) allow.
Seat								
Seat Height ^{b)}	(a)	Adjustable Adjustment range	Yes No	400 120	510 ⊗	Yes Yes	400-557 157mm	P P
Seat Depth	(b)	Non-adjustable Adjustable Adjustment range	Yes No	400 50	No ⊗	Yes Yes	375-462mm 87mm	P ¹ P
Depth of seat surface	(c)		No	380	⊗	Yes	441mm	P
Seat width	(d)		No	400	⊗	Yes	456mm	P
Inclination of seat surface	(e)	Non-adjustable Adjustable Adjustment range	Yes No	-2° 6°	No ⊗	Yes Yes	+14° → -16° 30°	P P
Backrest								
Height of the back supporting point "S" above the seat surface.	(f)	Non-adjustable Adjustable Adjustment range	Yes No	No 170 50	No 220 ⊗	Yes Yes	163-243mm 80mm	P P
Height of the back pad - adjustable in height - non-adjustable in height	(g)		No No	220 260	⊗ ⊗	Yes Yes	625mm/720mm	P ²
Height of the upper edge of the back rest above the seat surface	(h)		No	360	⊗	Yes	490mm/592mm	P ²
Back rest width	(i)		No	360	⊗	Yes	441mm/447mm	P
Horizontal radius of the backrest	(k)		No	400	⊗	Yes	>400mm	P
Backrest inclination	(l)	Adjustment range	No	15°	⊗	Yes	30°	P
Armrest								
Length of armrest	(n)		No	200	⊗	Yes	221mm/218mm	P ³
Width of armrest ^{c)}	(o)		No	40	⊗	Yes	91mm/107mm	P ³
Height of armrest above the seat	(p)	Non adjustable Adjustable	No Yes	200 200	250 250	No Yes	182-291mm/ 185-296mm	P ³
Distance from the front of the armrest to the front edge of the seat surface ^{d)}	(q)		No	100	⊗	Yes	85-190mm/ 93-202mm	P ³⁻⁴
Clear width between the armrest ^{e)}	(r)		Yes	460	510	Yes	416-548mm/ 383-516mm	P ³⁻⁴
Underframe								
Maximum offset of the underframe (anti-stumbling –dimension)	(s)		Yes	⊗	365 ^{f)}	No	398mm	P
Stability dimension ^{g)}	(t)		No	195	⊗	Yes	260mm	P

- a) For adjustable functions the Min. and Max. values must be obtained.
b) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required
c) The requirement applies over the minimum value *n* (See clause 6.13).
d) The requirement applies from a height of 170 mm above point "A" (See clause 6.15).
e) The requirement applies to ¾ of the seat depth *b* (Measured from the front edge of the seat) with the backrest in its foremost position (see clause 6.16).
f) If swivel castors are fitted the requirement is 415 mm
g) See clause 4.
⊗ No requirement specified.

Remarks.

See picture 1-2

1) Seat depth is measured from the constructional front edge of the seat. Foam and fabric have been compressed.

2) First measurement is for model 7210, second is for model 7320

3) First measurement is with standard armrests, second is with premium armrests

4) Measured 20mm below the top of the armrest

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Standard: **EN 1335-2:2009 – Safety requirements**

I. Scope

This part of EN 1335 specifies the mechanical safety requirements for office work chairs. The requirements are based upon use for 8 h a day by persons weighing up to 110 kg. For more severe conditions of use, increased requirements will be necessary. Annex A (normative) includes loads, masses and cycles for safety tests. Additional loads, masses and cycles for functional tests can be found in EN 1335-3:2009, Annex C.

Clause	Requirements / Remarks	Result
4	Safety requirements	
4.1	General design requirements	
4.1.1	<p>Corners and edges, trapping, pinching and shearing</p> <p>The chair shall be so designed as to minimize the risk of injury to the user. All parts of the chair with which the user comes into contact during intended use, shall be so designed that physical injury and damage to property are avoided. These requirements are met when:</p> <ul style="list-style-type: none"> a) the safety distance of accessible movable parts is either ≤ 8 mm or ≥ 25 mm in any position during movement; b) accessible corners are rounded with minimum 2 mm radius; c) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded with minimum 2 mm radius; d) the edges of handles are rounded with minimum 2 mm radius in the direction of the force applied; e) all other edges are free from burrs and rounded or chamfered; f) the ends of accessible hollow components are closed or capped. 	P
	<p>Remarks No remarks</p>	
4.1.2	<p>Adjusting devices</p> <p>Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided. It shall be possible to operate the adjusting devices from sitting position in the chair.</p>	P
	<p>Remarks No remarks</p>	
4.1.3	<p>Connections</p> <p>It shall not be possible for any load bearing part of the chair to come loose unintentionally.</p>	P
	<p>Remarks No remarks</p>	
4.1.4	<p>Avoidance of soiling</p> <p>All parts which are lubricated to assist sliding (greasing, lubricating, etc.) shall be designed to protect users from lubricant stains when in normal use.</p>	P
	<p>Remarks No remarks</p>	
4.2	<p>Test sequence</p> <p>The same chair shall be tested in the following sequence:</p> <ul style="list-style-type: none"> a) stability tests (optional); b) rolling resistance test (optional); c) seat and back rest tests; d) foot rest static load test; e) arm rests durability test; f) arm rest downward static load test – central (see Table A.2, Footnote a); g) stability tests; h) arm rest downward static load test – central (see Table A.2, Footnote b); i) rolling resistance test. 	P
	<p>Remarks No remarks</p>	

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Clause	Requirements / Remarks	Result
4.3	<p>Stability during use The chair shall not overbalance under the following conditions:</p> <ul style="list-style-type: none"> a) by pressing down on the front edge of the seat surface in the most adverse position; b) by leaning out over the arm rests; c) by leaning against the back rest; d) by sitting on the front edge. <p>Requirement a) is fulfilled if the chair does not overbalance when tested according to 7.1.1 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p> <p>Requirements b) and d) are fulfilled if the chair does not overbalance when tested according to 7.1.2, 7.1.3, 7.1.4 and 7.1.5 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p> <p>Requirement c) is fulfilled if the chair does not overbalance when tested according to 7.1.6 or 7.1.7 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p> <p>Remarks See picture 3-8 Only model 7320 was tested</p>	P

Actual result of test 4.3

Clauses given in EN 1335-3:2009	Test		Loads	Result
7.1.1	Front edge overturning	M ₁	27kg	>77kg
7.1.2	Forward overturning	F ₁	600N	600N
		F ₂	20N	140N
7.1.3	Forward overturning for chairs with footrests	F ₁	1100N	NA
		F ₂	20N	NA
7.1.4	Sideways overturning for chairs without armrests	F ₁	600N	NA
		F ₂	20N	NA
7.1.5	Sideways overturning for chairs with armrests	F ₁	250N	250N
		F ₂	350N	350N
		F ₃	20N	35N
7.1.6	Rearwards overturning for chairs without backrest inclination	F ₁	600N	600N
		F ₂	192N	232N
7.1.7	Rearwards overturning for chairs with backrest inclination	No. of discs	13	14,5

Clause	Requirements / Remarks	Result
4.4	<p>Rolling resistance of the unloaded chair The unloaded chair shall not roll unintentionally. This requirement is met when:</p> <ul style="list-style-type: none"> a) the castors are of identical construction; b) the rolling is ≥ 12 N when tested according to EN 1335-3:2009, 7.4. <p>Remarks See picture no8 Recorded value push/pull: 18/28N</p>	P

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Clause	Requirements / Remarks	Result
4.5	<p>Strength and durability</p> <p>The chair shall be constructed to ensure that it does not create a risk of injury to the user of the chair under the following conditions:</p> <ul style="list-style-type: none"> a) sitting on the seat, both centrally and off-centre; b) moving forward, backwards, and sideways while sitting in the chair; c) leaning over the arm rests; d) pressing down on the arm rests while getting up from the chair. <p>These requirements are fulfilled when after the tests specified in 7.2.1, 7.2.2, 7.2.6, 7.3.1 and 7.3.2 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard:</p> <ul style="list-style-type: none"> e) there are no fractures of any member, joint or component, and f) there is no loosening of joints intended to be rigid, and g) no major structural element is significantly deformed and the chair fulfils its functions after removal of the test loads h) and when: after the test in 7.2.3 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard, the arm rests show no fracture. 	P
	<p>Remarks</p> <p>See picture no 9-14 Only model 7320 was tested</p>	

Actual results of strength and durability tests

Clauses given in EN 1335-3:2009	Test		Force	Cycles	Result
7.2.1	Seat front edge static load test	F ₁	1600 N	10	P
7.2.2	Combined seat and back static load test	F ₁	1600 N	10	P
		F ₂	560 N		
7.2.6	Foot rest static load test	F	1300 N	10	NA
7.3.1	Seat and back durability				
	Step 1 –Loading Point A	F	1500 N	120000	P
	Step 2- Loading Point C	F	1200 N		
	Loading Point B	F	320 N	80000	P
	Step 3- Loading Point J	F	1200 N		
	Loading Point E	F	320 N	20000	P
	Step 4- Loading Point F	F	1200 N		
	Loading Point H	F	320 N		
Step 5- Loading Point D and G (alternating)	F	1100 N	20000	P	
7.3.2	Arm rest durability	F	400 N	60000	P
7.2.3	Arm rest downward static load test – central	F	750 N ^{a)}	5	P
			900 N ^{b)}	5	P

^{a)} This test shall be carried out before the stability tests

^{b)} This test shall be carried out after the stability tests

Clause	Requirements / Remarks	Result
	<p>Information for use</p> <p>Each chair shall be accompanied by information for use in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:</p> <ul style="list-style-type: none"> a) information regarding the intended use; b) information regarding possible adjustments and chair type (see EN 1335-1-2000) c) instruction for operating the adjusting mechanisms; d) instruction for the care and maintenance of the chair; e) information regarding adjustment of the seat and back rest; f) in case of chairs with seat height adjustment with energy accumulators, an additional note is required pointing out, that only trained personnel may replace or repair seat height adjustment components with energy accumulators; g) information on the choice of castors in relation to the floor surface. 	P
	<p>Remarks</p> <p>The chair is delivered with one assembly instruction and one user guide</p>	

End of test report

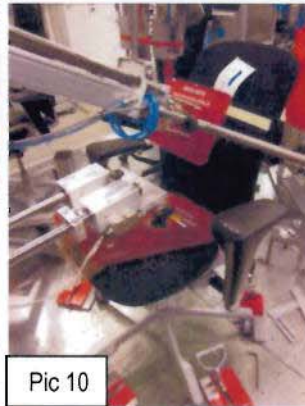
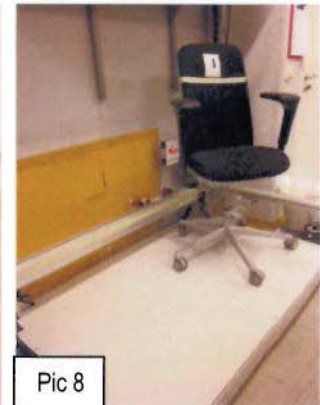
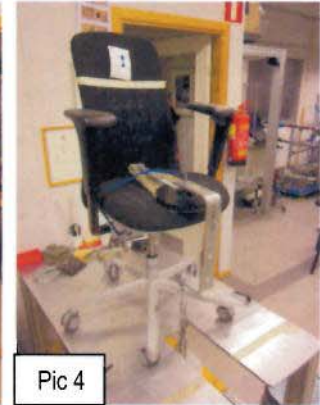
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Annex I – Photo documentation



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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 SoFi		
Test item ID:	HÅG SoFi 7210, 7310		
Serial No.	5110029725/1, 5110029725/2, 5110029725/3		
Order No.	2013-06-04-005		
Date of receipt.	2014-06-27		
Testing commenced / finished	2014-07-07 / 2014-09-15		
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:	<i>John Anders Spencer</i>		Approved by:
2014-10-15	John Anders Spencer		<i>Christian Andersson</i>
Date	Name	Sign.	Date
			2014-10-15
			Christian Andersson
			Name
			Sign.
Additional information.			
The test results refer only to the sample tested.			
The chair is manufactured with parts from the daily production.			
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	5,00
12.4.2	Front stability	1,50

Brief description of the test item upon receipt.

Håg Sofi

Office work chair Håg SoFi with aluminium base, armrests and two backrest heights.

Aluminium 5-star base with 65mm castors

Gas-spring from Stabilus

Tilting seat mechanism, with adjustment levers for seat height, seat depth, tilt resistance and tilt lock.

Armrest unit and posts made from aluminium, and armrest body and top made from aluminium (premium). Armrest are adjustable in depth, height and width by levers on the armrest.

Lumbar support is adjustable in height with lever on the back.



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 chairs were tested as Type I/III chairs due to the tilting mechanism and tilt lock function.

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



Figure 4a - Type I - Tilting Chair

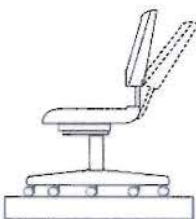


Figure 4b - Type II - Fixed seat angle, tilting backrest



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

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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.).	P
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.	
	Remarks During proof load the gas spring started to bend at about 1200N, but test was continued and considered to be ok. See picture no5	
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.).	P
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.	
	Remarks See picture no6	
7	Base Test - Static	
7.1	Applicability The test shall be performed on all pedestal bases.	P
7.2	Purpose of Test The purpose of this test is to evaluate the ability of a pedestal base to withstand excessive vertical forces.	
	Remarks Test passed. Tested until break after test. Breaking point 13,4kN-15,3kN See picture no7	
8	Drop Test - Dynamic	
8.1	Applicability This test applies to all chair types.	P
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.	
	Remarks See picture no8	
9	Swivel Test - Cyclic	
9.1	Applicability This test applies to all chair types with a swivel seat.	P
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.	
	Remarks See picture no9	

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Section	Requirements / Remarks	Result
10 10.1 10.2	<p>Tilt Mechanism Test – Cyclic</p> <p>Applicability This test shall be performed on Type I and Type II chairs with tilting backrests.</p> <p>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.</p> <p>Remarks See picture no 10</p>	P
11 11.1 11.2 11.3 11.4	<p>Seating Durability Tests – Cyclic</p> <p>Note: This is a two-part test. The impact test and front corner load-ease tests must be run sequentially for this evaluation.</p> <p>11.1 Applicability These tests apply to all chair types.</p> <p>11.2 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> <p>11.3 Impact Test</p> <p>11.4 Front Corner Load-Ease Test – Cyclic – Off-centre</p> <p>Remarks See pictures no 11</p>	P P
12 12.1 12.2 12.3 12.3.1 12.3.2 12.4	<p>Stability Tests</p> <p>12.1 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> <p>12.2 Purpose of test The purpose of these tests is to evaluate the front and rear stability of chairs.</p> <p>12.3 Rear Stability</p> <p>12.3.1 Rear Stability Test for Type III Chairs</p> <p>12.3.2 Rear Stability Test for Type I and II Chairs</p> <p>12.4 Front Stability</p> <p>Remarks Rear stability for type III chair: Calculated with seat height of 534mm and force requirement of 130N-Result 185N. Pass Rear stability for type I chair: Requirement 13 ISO-discs. Result >14 discs. Pass Front stability: Requirement 20N horizontal force. Result 152N. Pass See pictures no 12</p>	P P P
13 13.1 13.2	<p>Arm Strength Test - Vertical – Static</p> <p>13.1 Applicability This test applies to all chairs with arms.</p> <p>13.2 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>Remarks Tested with premium armrests. See picture no 13</p>	P
14 14.1 14.2	<p>Arm Strength Test - Horizontal – Static</p> <p>14.1 Applicability This test applies to all chairs with arms.</p> <p>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).</p> <p>Remarks Tested with premium armrests. See picture no 14</p>	P

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Section	Requirements / Remarks	Result
15	Backrest Durability Test - Cyclic - Type I	P
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. Remarks See picture no 15	
16	Backrest Durability Test - Cyclic - Type II and III	P
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. Remarks See picture no 16	
17	Caster/Chair Base Durability Test - Cyclic	P
17.1	Caster/Chair Base Durability Test for Pedestal Base Chairs	
17.1.1	Applicability This test applies to pedestal base chairs with casters. 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. Remarks See picture no 17	
17.2	Caster/Chair Frame Durability Test for Chairs with Legs	NA
17.2.1	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). 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.	
17.2.2	Remarks	
18	Leg Strength Test - Front and Side Application	NA
18.1	Applicability This test applies to all chairs without pedestal bases.	
18.2	Purpose of Test The purpose of this test is to evaluate the ability of legs to withstand horizontal side and frontal forces.	
18.3	Front Load Test	
18.4	Side Load Test Remarks	

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Section	Requirements / Remarks	Result
19 19.1 19.2	<p>Footrest Static Load Test – Vertical</p> <p>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.).</p> <p>Purpose of Test The purpose of this test is to evaluate the ability of the footrest to withstand static loading stresses.</p> <p>Remarks</p>	NA
20 20.1 20.2	<p>Footrest Durability Test - Vertical – Cyclic</p> <p>Applicability The footrest durability test shall be performed on all chairs with a footrest feature.</p> <p>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.</p> <p>Remarks</p>	NA
21 21.1	<p>Arm Durability Test – Cyclic</p> <p>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.</p> <p>Remarks See picture no 21</p>	P
22 22.1	<p>Out Stop Tests for Chairs with Manually Adjustable Seat Depth</p> <p>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.</p> <p>Remarks</p>	NA
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>Remarks</p>	NA
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>Remarks</p>	NA

Annex I – Photo documentation



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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 SoFi		
Test item ID:	7360		
Serial No.	2000006024-11		
Order No.	2013-06-04-007		
Date of receipt.	2014-04-24		
Testing commenced / finished	2014-05-07 / 2014-10-02		
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.: 275	Valid to: 2018-04-18
Tested according to.	NPR 1813:2009+CI:2011 nl EN 1335-2:2009 EN 1335-3:2009		
Test result.	The test item passed the test specifications.		
Tested by:	 Christian Andersson	Approved by:	 John Anders Spencer
2014-10-15		2014-10-15	
Date	Name	Sign.	Date
Additional information.			
The test results refer only to the sample tested.			
Mechanical testing of the chair was carried out without armrests.			
The temperature during the period of the test was within the specified range of 15°- 25°C			
Abbreviations	P	=Passed	
	F	=Failed	
	NA	=Not applicable	
	NT	=Not tested	

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Estimated uncertainty of measurement

Measurement	Description	Uncertainty (mm)
<i>a</i>	Seat height	4,01
<i>b</i>	Seat depth	3,82
<i>c</i>	Depth of seat surface	1,24
<i>d</i>	Seat width	3,53
<i>e</i>	Inclination of seat surface	2,25
<i>f</i>	Height of the back supporting point S above the seat surface	9,76
<i>g</i>	Height of the back pad	3,79
<i>h</i>	Height of the upper edge back rest above the seat surface	3,38
<i>i</i>	Back rest width	1,58
<i>k</i>	Horizontal radius of back rest	NA
<i>l</i>	Back rest inclination adjustment range	1,72
<i>n</i>	Length of the useful area of the arm rest	2,45
<i>o</i>	Width of the useful area of the arm rest	1,34
<i>p</i>	Height of the useful area of the arm rest above the seat	2,44
<i>q</i>	Distance from the front of the useful area of the arm rests to the front edge of the seat	4,38
<i>r</i>	Clear width between the useful area of the arm rests	4,84
<i>s</i>	Maximum offset of the underframe	1,58
<i>t</i>	Stability dimension	3,29

Estimated uncertainty of stability measurement (swivel chairs)

Measurement	Description	Uncertainty (N)
<i>7.1.1</i>	Front edge overturning	4,51
<i>7.1.2</i>	Forwards overturning	3,37
<i>7.1.4</i>	Sideways overturning for chairs without armrests	3,49
<i>7.1.5</i>	Sideways overturning for chairs with armrests	2,43
<i>7.1.6</i>	Rearwards overturning for chairs without back rest inclination	3,91
<i>7.1.7</i>	Rearwards overturning for chairs with back rest inclination	6,84

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Brief description of the test item upon receipt.

HÅG SoFi 7360

Office work chair, HÅG SoFi,

- Aluminium 5-star base with 65mm castors.
- 150 mm gas spring.
- Seat mechanism with tilt. Tilt tension adjustment, tilt lock, gas spring lever and seat depth adjustment lever.
- Upholstered seat and backrest.
- Backrest with fixed height.
- Height adjustable lumbar support.
- Armrests adjustable in width, depth (Slideback™ function) and height.
- Rotatable plastic armrest top (approx. 15° inward).
- Upholstered headrest adjustable in height and depth.



Remarks:

There were no remarks upon receipt

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Standard: **NPR 1813:2009+CI:2011 nl**

	Dimensions	Requirements (mm)	Measured value (mm)	Results
a	Seat height. Adjustment range.	410 – 550 140 min.	405mm – 550mm 145mm	P
b	Seat depth. Adjustment range.	380 – 480 100 min.	380mm – 492mm 112mm	P¹
c	Depth of the seat surface.	440 min.	446mm	P
d	Seat width.	400 min.	458mm	P
e	Seat inclination. Minimum adjustment range	≥+3° to ≤-7° (optional) 10°	+14,2° to -16,5° 30,7°	P
f	Height of the back supporting point "S" above the seat surface.	≤ 170 to ≥ 230	170mm - 233mm	P
g	Height of the back pad.	370 min.	715mm	P
i	Width of the backrest.	360 min.	443mm	P
k	Horizontal radius of the backrest at point "S".	R= 400 min.	>400mm	P
l	Backrest inclination.	15° min.	31,5°	P
n	Length of the armrests.	150 min.	230mm	P
o	Width of the armrests.	50 min.	104mm	P²
p	Height of the armrests above the seat.	200 – 300 min.	193mm – 303mm	P³
q	Distance from the front of the armrests to the front edge of the seat surface (in point "A")	200 min.	95mm – 244mm	P¹
r	Clear width between the armrests	360 – 510 min.	332mm – 510mm	P⁴
s	Maximum offset of the underframe.	365 max. (glides) 415 max. (castors)	397mm	P
t	Stability dimension.	195 min.	260mm	P

Remarks

¹ Measured with compressed foam on seat front edge.

² Measured within the useful area(50*150mm) of the armrest.

³ Armrest considered to be rounded and is therefore measured 20mm below the top.

⁴ Min. value measured with armrest in narrowest, lowest, and armrest top turned inwards. Max value measured with armrests in widest, highest, and with armrest top turned outwards.

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Standard: **EN 1335-2:2009 – Safety requirements**

Clause	Requirements / Remarks	Result
1. Scope		
<p>This part of EN 1335 specifies the mechanical safety requirements for office work chairs. The requirements are based upon use for 8 h a day by persons weighing up to 110 kg. For more severe conditions of use, increased requirements will be necessary. Annex A (normative) includes loads, masses and cycles for safety tests. Additional loads, masses and cycles for functional tests can be found in EN 1335-3:2009, Annex C.</p>		
2. Normative references		
See test specification		
3. Terms and definitions		
See test specification		
4	Safety requirements	
4.1	General design requirements	
4.1.1	<p>Corners and edges, trapping, pinching and shearing</p> <p>The chair shall be so designed as to minimize the risk of injury to the user. All parts of the chair with which the user comes into contact during intended use, shall be so designed that physical injury and damage to property are avoided. These requirements are met when:</p> <ul style="list-style-type: none"> a) the safety distance of accessible movable parts is either ≤ 8 mm or ≥ 25 mm in any position during movement; b) accessible corners are rounded with minimum 2 mm radius; c) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded with minimum 2 mm radius; d) the edges of handles are rounded with minimum 2 mm radius in the direction of the force applied; e) all other edges are free from burrs and rounded or chamfered; f) the ends of accessible hollow components are closed or capped. 	P
	Remarks No remarks.	
4.1.2	<p>Adjusting devices</p> <p>Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided. It shall be possible to operate the adjusting devices from sitting position in the chair.</p>	P
	Remarks No remarks.	
4.1.3	<p>Connections</p> <p>It shall not be possible for any load bearing part of the chair to come loose unintentionally.</p>	P
	Remarks No remarks.	
4.1.4	<p>Avoidance of soiling</p> <p>All parts which are lubricated to assist sliding (greasing, lubricating, etc.) shall be designed to protect users from lubricant stains when in normal use.</p>	P
	Remarks No remarks.	

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Clause	Requirements / Remarks	Result
4.2	<p>Test sequence</p> <p>The same chair shall be tested in the following sequence:</p> <ul style="list-style-type: none"> a) stability tests (optional); b) rolling resistance test (optional); c) seat and back rest tests; d) foot rest static load test; e) arm rests durability test; f) arm rest downward static load test – central (see Table A.2, Footnote a); g) stability tests; h) arm rest downward static load test – central (see Table A.2, Footnote b); i) rolling resistance test. 	P
	<p>Remarks</p> <p>No remarks.</p>	
4.3	<p>Stability during use</p> <p>The chair shall not overbalance under the following conditions:</p> <ul style="list-style-type: none"> a) by pressing down on the front edge of the seat surface in the most adverse position; b) by leaning out over the arm rests; c) by leaning against the back rest; d) by sitting on the front edge. <p>Requirement a) is fulfilled if the chair does not overbalance when tested according to 7.1.1 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p> <p>Requirements b) and d) are fulfilled if the chair does not overbalance when tested according to 7.1.2, 7.1.3, 7.1.4 and 7.1.5 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p> <p>Requirement c) is fulfilled if the chair does not overbalance when tested according to 7.1.6 or 7.1.7 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard.</p>	P
	<p>Remarks</p> <p>Front edge, forward and sideways overturning for chairs without armrests were all tested without armrests, but with the attaching bracket still on the chair.</p>	

Actual result of test 4.3

Clauses given in EN 1335-3:2009	Test		Loads	Result
7.1.1	Front edge overturning	M ₁	27kg	>40kg
7.1.2	Forward overturning	F ₁	600N	600N
		F ₂	20N	>30N
7.1.3	Forward overturning for chairs with footrests	F ₁	1100N	NA
		F ₂	20N	NA
7.1.4	Sideways overturning for chairs without armrests	F ₁	600N	600N
		F ₂	20N	181N
7.1.5	Sideways overturning for chairs with armrests	F ₁	250N	250N
		F ₂	350N	350N
		F ₃	20N	22N
7.1.6	Rearwards overturning for chairs without backrest inclination	F ₁	600N	600N
		F ₂	192N	246N
7.1.7	Rearwards overturning for chairs with backrest inclination	No. of discs	13	>14

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Clause	Requirements / Remarks	Result
4.4	<p>Rolling resistance of the unloaded chair The unloaded chair shall not roll unintentionally. This requirement is met when:</p> <ul style="list-style-type: none"> a) the castors are of identical construction; b) the rolling is ≥ 12 N when tested according to EN 1335-3:2009, 7.4. 	P
	<p>Remarks Push = 12N Pull = 16N</p>	
4.5	<p>Strength and durability The chair shall be constructed to ensure that it does not create a risk of injury to the user of the chair under the following conditions:</p> <ul style="list-style-type: none"> a) sitting on the seat, both centrally and off-centre; b) moving forward, backwards, and sideways while sitting in the chair; c) leaning over the arm rests; d) pressing down on the arm rests while getting up from the chair. <p>These requirements are fulfilled when after the tests specified in 7.2.1, 7.2.2, 7.2.6, 7.3.1 and 7.3.2 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard:</p> <ul style="list-style-type: none"> e) there are no fractures of any member, joint or component, and f) there is no loosening of joints intended to be rigid, and g) no major structural element is significantly deformed and the chair fulfils its functions after removal of the test loads h) and when: after the test in 7.2.3 of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard, the arm rests show no fracture. 	P
	<p>Remarks Mechanical testing of the chair was carried out without armrests.</p>	
5	<p>Information for use Each chair shall be accompanied by information for use in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:</p> <ul style="list-style-type: none"> a) Information regarding the intended use; b) Information regarding possible adjustments and chair type (see EN 1335-1-2000); c) Instruction for operating the adjusting mechanisms; d) Instruction for the care and maintenance of the chair; e) Information regarding adjustment of the seat and back rest; f) In case of chairs with seat height adjustment with energy accumulators, an additional note is required pointing out, that only trained personnel may replace or repair seat height adjustment components with energy accumulators; g) Information on the choice of castors in relation to the floor surface. 	P
	<p>Remarks No remarks.</p>	

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Annex A (normative)

Loads, masses and cycles for safety tests

Table A.1 – Loads, masses and cycles for stability tests

Clauses given in EN 1335-3:2009	Test		Loads	Cycle
7.1.1	Front edge overturning	M ₁	27 kg	1
7.1.2	Forward overturning	F ₁	600 N	1
		F ₂	20 N	
7.1.3	Forward overturning for chairs with footrests	F ₁	1100 N	1
		F ₂	20 N	
7.1.4	Sideways overturning for chairs without armrests	F ₁	600 N	1
		F ₂	20 N	
7.1.5	Sideways overturning for chairs with armrests	F ₁	250 N	1
		F ₂	350 N	
		F ₃	20 N	
7.1.6	Rearwards overturning for chairs without backrest inclination	F ₁	600 N	1
		F ₂	192 N	
7.1.7	Rearwards overturning for chairs with backrest inclination	No. of discs	13	1

Table A.2 – loads and cycles for strength and durability tests

Clauses given in EN 1335-3:2009	Test		Loads	Cycles
7.2.1	Seat front edge static load test	F ₁	1600 N	10
7.2.2	Combined seat and back static load test	F ₁	1600 N	10
		F ₂	560 N	
7.2.6	Foot rest static load test	F	1300 N	10
7.3.1	Seat and back durability			
	Step 1 – Loading Point A	F	1500 N	120000
	Step 2- Loading Point C Loading Point B	F	1200 N	80000
		F	320 N	
	Step 3- Loading Point J Loading Point E	F	1200 N	20000
		F	320 N	
	Step 4- Loading Point F Loading Point H	F	1200 N	20000
F		320 N		
Step 5- Loading Point D and G (alternating)	F	1100 N	20000	
7.3.2	Arm rest durability	F	400 N	60000
7.2.3	Arm rest downward static load test – central	F	750 N ^{a)}	5
		F	900 N ^{b)}	5

a) This test shall be carried out before the stability tests

b) This test shall be carried out after the stability tests

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Standard: **EN 1335-3:2009 – Test Methods**

Clause	Requirements / Remarks
1. Scope	This European Standard specifies mechanical test methods for determining the stability, strength and durability of office work chairs. See test specification
2. Normative references	See test specification
3. Terms and definitions	See test specification
4	General test conditions
4.1	<p>Preliminary preparation</p> <p>The unit shall be assembled and/or configured according to the instructions supplied with it. The most adverse configuration shall be used for each test, see Table 1. For testing a range of related chair models, only worst case(s) need to be tested. If mounting or assembly instructions are not supplied, the mounting or assembly method shall be recorded in the test report. Fittings shall not be re-tightened unless specifically required by the manufacturer. If the configuration must be changed to produce the worst case conditions, any retightening of the fittings shall be recorded in the test report.</p> <p>Unless otherwise stated all tests shall be carried out on the same sample.</p> <p>The tests shall be carried out in indoor ambient conditions. If during a test the temperature is outside of the range of 15 °C to 25 °C, the maximum and/or minimum temperature shall be recorded in the test report. In the case of designs not addressed in the test procedures, the test shall be carried out as far as possible as described, and deviations from the test procedure recorded in the test report. Before beginning the testing, visually inspect the unit thoroughly. Record any defects so that they are not assumed to have been caused by the tests. Carry out measurements if specified.</p> <p>Remarks No remarks.</p>
4.2	<p>Test equipment</p> <p>Unless otherwise specified, the tests may be applied by any suitable device because results are dependent only upon correctly applied forces and not on the apparatus. The equipment shall not inhibit deformation nor cause unnatural deformation of the unit/component, i.e. it shall be able to move so that it can follow the deformation of the unit/component during testing. All loading pads shall be capable of pivoting in relation to the direction of the applied force. The pivot point shall be as close as practically possible to the load surface. If a loading pad tends to slide use a slip resistant material between the loading pad and the surface being tested.</p> <p>Remarks No remarks.</p>

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Clause	Requirements / Remarks
4.3	<p>Application of forces</p> <p>The forces in the static load tests shall be applied sufficiently slowly to ensure that negligible dynamic force is applied. Each force shall be maintained for not less than 10 s and not more than 15 s.</p> <p>The forces in durability tests shall be applied at a rate to ensure that excessive heating does not occur. Each force shall be maintained for (2 ± 1) s.</p> <p>The forces may be applied using masses.</p> <p>Remarks No remarks.</p>
4.4	<p>Tolerances</p> <p>Unless otherwise stated, the following tolerances are applicable:</p> <p>Forces: ± 5 % of the nominal force</p> <p>Masses: ± 1 % of the nominal mass</p> <p>Dimensions: ± 5 mm of the nominal dimension on soft surfaces ± 1 mm of the nominal dimension on all other surfaces</p> <p>Angles: $\pm 2^\circ$ of the nominal angle</p> <p>The accuracy for the positioning of loading pads shall be ± 5 mm.</p> <p>The tests specify the application of forces. Masses may, however, be used. The relation 10 N for 1 kg may be used for this purpose.</p> <p>Remarks No remarks.</p>
4.5	<p>Sequence of testing</p> <p>All applicable tests shall be carried out on the same sample.</p> <p>The sequence of the safety tests shall be as specified in EN 1335-2:2009, 4.2. If functional tests shall be carried out, this shall be done in the sequence of Table C.1 after completing all the safety tests specified in EN 1335-2.</p> <p>Remarks</p>
4.6	<p>Inspection and assessment of results</p> <p>After completion of each test, inspect the unit again. Record any changes including:</p> <ol style="list-style-type: none"> fracture of any component or joint; loosening of any joint intended to be rigid, which can be demonstrated by hand pressure; deformation or wear of any part or component such that its function is impaired; loosening of any means of fixing components to the unit; changes that may affect stability. <p>Remarks No remarks.</p>

Table I - Positioning of chair components

Clause	Test	Seat height	Seat	Back rest in height	Back rest in depth	Tilt stiffness adjustment	Castors and base	Arm rest	Foot rest
7.1.1	Front edge overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	
7.1.2	Forward overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	—
7.1.3	forward overturning for chairs with foot rest	highest position	foremost position	lowest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	most likely to cause overturning
7.1.4	Sideways overturning for chairs without arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	--	--
7.1.5	Sideways overturning for chairs with arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	--
7.1.6	Rearwards overturning of chairs without back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	--
7.1.7	Rearwards overturning of chairs with back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	--
7.2.1	Seat front edge static load test	highest position	foremost position	--	--	--	--	--	--
7.2.2	Combined seat and back static load	highest position	most adverse position	highest position	rearmost position	mid range	least likely to cause overturning	--	--
7.2.3	Arm rest downward static load test – central	lowest position	horizontal	--	--	--	--	most likely to cause failure	--
7.2.4	Arm rest downward static load test – front	lowest position	horizontal	--	--	--	--	highest, foremost position	--
7.2.5	Arm rest sideways static load test	lowest position	horizontal	--	--	--	--	highest, widest position	--
7.2.6	Foot rest static load test	--	--	--	--	--	least likely to cause overturning	--	highest position
7.3.1	Seat and back durability	highest position	horizontal	highest position	most likely to cause failure	mid range	90° to the base arm	--	--
7.3.2	Arm rest durability	lowest position	horizontal	--	--	maximum tension	--	highest, widest position	--
7.3.3	Swivel test	highest position	horizontal, foremost position	highest position	rearmost position	--	--	--	--
7.3.4	Foot rest durability	--	--	--	--	--	least likely to cause overturning	--	lowest position
7.3.5	Castor durability	lowest position	horizontal	--	--	--	--	--	--

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Clause	Requirements / Remarks
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5 Test apparatus

See test specification.

6 Loading points

6.1 Loading point "A"

The point in which the chair's axis of rotation intersects with the seat surface with the seat in a position as close as possible to the horizontal.

6.2 Loading point "B"

The point on the centreline of the back rest, 300 mm above loading point "A" (6.1) measured when the seat is loaded with 640 N through the seat loading pad.

6.3 Loading point "e"

A point in front of loading point "A" (6.1) along the centre line of the seat, 100 mm from the edge of the load bearing structure of the seat.

6.4 Loading point "D"

The point 150 mm to the right of loading point "A" (6.1).

6.5 Loading point "E"

The point 50 mm to the right of loading point "S" (6.2).

6.6 Loading point "F"

A point in front of loading point "O" (6.4) on a line parallel to the centre line, 100 mm from the edge of the load bearing structure of the seat.

6.7 Loading point "G"

The point 150 mm to the left of loading point "A" (6.1).

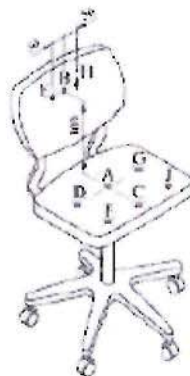
6.8 Loading point "H"

The point 50 mm to the left of loading point "S" (6.2).

6.9 Loading point "J"

A point in front of loading point "G" (6.7) on a line parallel to the centre line, 100 mm from the structure of the seat edge.

Dimensions in millimetres



A Loading point "A"

B Loading point "B"

C Loading point "C"

D Loading point "D"

E Loading point "E"

F Loading point "F"

G Loading point

H Loading point

J Loading point

Figure 6 - Loading points

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Clause	Requirements / Remarks
7	Tests methods
7.1	Stability Position the chair on the test surface (see 5.1) with its components as specified in 4.1 and Table I. Record whether the chair overturns during the tests in 7.1.1 to 7.1.7.
	Remarks Least tilt tension was used to create worst case scenario.
7.1.1	Front edge overturning Do not position the chair with the stops against the supporting points (3.5). Fix the strap (5.8) to the chair as shown in Figure 7, i.e. the force is applied at the point on the front edge that is furthest from the axis of rotation, and allow the mass M_1 to hang freely (see Figure 7).
	Remarks Tested without armrests, but with the attaching bracket still on the chair. See corresponding photo.
7.1.2	Forwards overturning Position the chair with two adjacent supporting points (3.5) on the front against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the front edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal outwards force F_2 from the point on the seat surface where the vertical force is applied (see Figure 8).
	Remarks Tested without armrests, but with the attaching bracket still on the chair. See corresponding photo.
7.1.3	Forwards overturning for chairs with footrest For chairs with footrests repeat the principle of 7.1.2 on the footrest. For round cross section ring shaped footrests, the vertical force F_1 shall be applied through the centre of the ring cross section.
	Remarks NA
7.1.4	Sideways overturning for chairs without armrests Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the side edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal sideways force F_2 outwards from the point on the seat surface where the vertical force is applied, (see Figure 9).
	Remarks Tested without armrests, but with the attaching bracket still on the chair. See corresponding photo.
7.1.5	Sideways overturning for chairs with arm rests Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2). Apply by means of the stability loading device (5.9) a vertical force F_1 acting at a point 100 mm from the fore and aft centre line of the seat at the side where the supporting points (3.5) are restrained (see Figure 10) and between 175 mm and 250 mm forward of the rear edge of the seat. Apply a vertical downward force F_2 acting at points on the armrest which is on the same side as the restrained supporting points (3.5) up to a maximum 40 mm inwards from the outer edge of the upper surface of the arm rest. But not beyond the centre of the armrest, and at the most adverse position along its length. Apply a horizontal sideways force F_3 outwards from the same point for at least 5 s see Figure 10).
	Remark See corresponding photo.

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Clause	Requirements / Remarks
7.1.6	<p>Rearwards overturning for chairs without back rest Inclination</p> <p>Position the chair with two adjacent supporting points (3.5) on the back against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration.</p> <p>A vertical force F_1 shall be applied at point "A" (6.1) and a horizontal force F_2 shall be applied at point "B" (6.2), (see Figure 11).</p> <p>If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1).base and the centre column. Record any fracture or damage to the chair.</p> <p>Remark See corresponding photo.</p>
7.1.7	<p>Rearwards overturning for chairs with adjustable back rest Inclination</p> <p>Do not position the chair with the supporting points (3.5) against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration.</p> <p>Load the chair with discs (5.10) so that the discs are firmly settled against the backrest (see Figure 12). If the height of the stack of discs exceeds the height of the back rest, prevent the upper discs from sliding off by the use of a light support.</p> <p>Remark See corresponding photo.</p>
7.2	<p>Static load tests</p> <p>Position the chair and its components as specified in 4.1 and Table I on the test surface (5.1)</p> <p>Remark See corresponding photo.</p>
7.2.1	<p>Seat front edge static load test</p> <p>Position the smaller seat loading pad (5.4) at loading point "F" or "J" (6.6 or 5.9).</p> <p>Apply a vertical downward force F_1 through the centre of the loading pad.</p> <p>Remark See corresponding photo.</p>
7.2.2	<p>Combined seat and back static load test</p> <p>Prevent the chair from moving rearwards by placing stops (5.2) behind two adjacent supporting points (3.5) at the rear of the chair. Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position. Apply a vertical force F_1 through the seat loading pad (5.3) at point "A" (6.1). Keep the seat loaded and apply a force F_2 through the centre of the back loading pad (5.6) at point "B" (6.2). When fully loaded the force shall act at $90^\circ \pm 10^\circ$ to the backrest plane (see Figure 13). If the chair tends to overturn reduce the back rest force and report the actual force. Remove the back force and then the seat force.</p> <p>Remark See corresponding photo.</p>
7.2.3	<p>Arm rest downward static load test - central</p> <p>The arm rests shall be loaded vertically by means of the local loading pads (5.5). The loading points shall be at the midpoint of the arm rest length (3.4) and centred side to side.</p> <p>Apply the force to both arm rests simultaneously (see Figure 14).</p> <p>Remark NT</p>
7.2.4	<p>Arm rest downward static load test - front</p> <p>The armrests shall be loaded vertically by means of the local loading pads (5.5). The Loading points shall be 75 mm from the front edge and centred side to side.</p> <p>Apply the force to both arm rests simultaneously (see Figure 15)</p> <p>Remark NT</p>

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Clause	Requirements / Remarks												
7.2.5	<p>Arm rest sideways static load test Apply an outward horizontal force to both armrests simultaneously. Apply the forces to the edge of the arm rest at the point along the arm rest most likely to cause failure but not less than 75 mm from the front or rear edge (see figure 16).</p> <p>Remark NT</p>												
7.2.6	<p>Foot rest static load test Apply a vertical force acting 80 mm from front edge of the load bearing structure of the footrest at those points most likely to cause failure. For round cross section ring shaped footrests, the force shall be applied through the centre of the ring cross section. If the chair tends to overturn load the seat to prevent overturning and report this.</p> <p>Remark NA</p>												
7.3	<p>Durability tests Position the chair and its components as specified in 4.1 and Table 1 on the test surface (5.1) except for the castor and chair base durability test (7.3.5).</p> <p>Remark No remarks.</p>												
7.3.1	<p>Seat and back durability The upper part of the chair shall be positioned so that the centre of the back rest is midway between two adjacent supporting points (3.5) of the base with stops (5.2) against these supporting points. The seat load shall be applied vertically using the seat loading pad (5.3). The backrest force shall be applied at an angle of $90^\circ \pm 10^\circ$ to the back rest when fully loaded (see Figure 17) using the back loading pad (5.6). All chairs shall be tested to steps 1 to 5 (see Table 2). Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested in step 2 first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position. In steps 3, 4 and 5 the mechanism shall be set free to move. One cycle shall consist of the application and removal of the force(s) at the respective loading point(s). Each step shall be completed before going to the next. First the seat force shall be applied and maintained while the back rest force is applied. If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1). If the axis cannot be adjusted to 300 mm, adjust the force to produce the same bending moment.</p> <p>Table 2 – Seat and back durability test</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Loading Point (see Figure 6)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A</td> </tr> <tr> <td>2</td> <td>C-B</td> </tr> <tr> <td>3</td> <td>J-E</td> </tr> <tr> <td>4</td> <td>F-H</td> </tr> <tr> <td>5</td> <td>D-G</td> </tr> </tbody> </table> <p>Remarks See corresponding photo.</p>	Step	Loading Point (see Figure 6)	1	A	2	C-B	3	J-E	4	F-H	5	D-G
Step	Loading Point (see Figure 6)												
1	A												
2	C-B												
3	J-E												
4	F-H												
5	D-G												
7.3.2	<p>Armrest durability Apply simultaneously and cyclically the force on each arm rest at points 100 mm behind the foremost point of the arm rest length (see 3.4). Apply a force of (10 ± 5) N through a loading device in principle functioning as shown in Figure 4. With this force applied adjust the apparatus so that each "arm" of the test apparatus has an angle of $10^\circ \pm 1^\circ$ to the vertical. The length of the "arm" of the test apparatus shall be $600 \text{ mm} \pm 10 \text{ mm}$. The arm rests shall be allowed to deform freely.</p> <p>Remark NT</p>												

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Clause	Requirements / Remarks
7.3.3	<p>Swivel test</p> <p>The base of the chair shall be secured on a rotating table with a test surface (see 5.1) so that the rotating axis of the chair coincides with the rotating axis of the table. The upper part of the chair shall be loosely fixed in such a way as not to hinder the rotation of the base. Load the seat in loading point "A" (6.1) with a mass M_1 and in loading point "C" (6.3) with a mass M_2 or any equivalent loading which will result in the same downwards force and bending moment on the chair. The angle of rotation shall be 360° at a rate of (10 ± 5) cycles/minute. Change direction after each rotation.</p>
	<p>Remark</p> <p>See corresponding photo.</p>
7.3.4	<p>Foot rest durability</p> <p>Using the local loading pad (5.5) apply a vertical downward force to the foot rest at the point most likely to cause failure but not less than 80 mm from the front edge. For round cross section ring shaped foot rests. the force shall be applied through the centre of the ring cross section</p>
	<p>Remark</p> <p>NA</p>
7.3.5	<p>Castor and chair base durability</p> <p>This test does not apply to chairs with castors which are braked when the chair is loaded. The chair shall be placed on a rotating table with a test surface (see 5.1) so that the rotating axis of the chair coincides with the rotating axis of the table. Load the seat in point "A" with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel; the table shall be rotated with a rate of 6 cycles per minute. The angle of rotation shall be from 0° to 180° and back. One rotation forward and one rotation backward constitutes one cycle.</p> <p>Alternatively attach the chair to a device that provides a linear movement of $(1\ 000 \pm 250)$ mm and a test surface (see 5.1). Load the seat in point "A" with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel, the device shall move with a rate of 6 cycles per minute. One movement forward and one movement backward constitutes one cycle.</p> <p>NOTE For both alternatives it is recommended to perform the test with a speed as slow as possible with a short break when the device changes direction.</p>
	<p>Remark</p> <p>See corresponding photo.</p>
7.4	<p>Rolling resistance of the unloaded chair</p> <p>The chair shall be placed on the test surface (see 5.1) and shall be pushed or pulled over a distance of at least 550 mm. A speed of (50 ± 5) mm/s shall be maintained over the measuring distance. The force shall be applied at a height of (200 ± 50) mm above the test surface. Record the force used to push or to pull the chair over the distance from 250 mm to 500 mm as the rolling resistance.</p>
	<p>Remark</p> <p>See corresponding photo.</p>
8	<p>Test report</p> <p>The test report shall include at least the following information:</p> <ol style="list-style-type: none"> reference to this standard; details of the chair tested; any defects observed before testing; test results according to Clause 7; details of any deviations from this standard; name and address of the test facility; dates of tests.

End of test report

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Photo documentation.



7.2.1



7.2.2



7.3.1-2



7.3.1-3



7.3.1-4



7.3.1-5



7.1.1



7.1.2



7.1.4



7.1.5



7.1.6



7.1.7



7.4



7.3.3



CERTIFICATE OF COMPLIANCE



HAG

HAG SoFi

29832-410

Certificate Number

05/18/2006 - 05/19/2017

Certificate Period

Certified

Status

UL 2818 - 2013 Standard for Chemical Emissions for Building Materials, Finishes and Furnishings

Products tested in accordance with UL 2821 test method to show compliance to emission limits in UL 2818, Section 7.1.

Seating units are tested in accordance with ANSI/BIFMA M7.1-2011 and determined to comply with ANSI/BIFMA X7.1-2011 and ANSI/BIFMA e3-2014e Credit 7.6.1. Seating units are modeled in the seating environment.



Environment

UL Environment investigated representative samples of the Identified Product(s) to the Identified Standard(s) or other requirements in accordance with the agreements and any applicable program service terms in place between UL Environment and the Certificate Holder (collectively "Agreement"). The Certificate Holder is authorized to use the UL Environment Mark for the Identified Product(s) manufactured at the production site(s) covered by the Agreement. This Certificate is valid for the identified dates unless there is non-compliance with the Agreement.

GREENGUARD Certification Criteria for Mattresses, Bedding, Component Materials and Seating Units

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC ^(A)	-	0.25	mg/m ³
Formaldehyde	50-00-0	30.7 (25 ppb)	µg/m ³
Total Aldehydes ^(B)	-	0.05	ppm
4-Phenylcyclohexene ^(C)	4994-16-5	3.25	µg/m ³
Individual VOCs ^(D)	-	1/10th TLV	-

- (A) Defined to be the total response of measured VOCs falling within the C₆ – C₁₆ range, with responses calibrated to a toluene surrogate.
- (B) The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- (C) Applicable to flooring and furniture, including component materials.
- (D) Allowable levels for chemicals not listed are derived from 1/10th of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).



Certificate



Prüfbescheinigung nach dem Produktsicherheitsgesetz

Test Certificate in compliance with the Product Safety Law

Bescheinigungs-Nr. (Certificate No.): 16FUP1677-01

Das Produkt entspricht den Anforderungen des Produktsicherheitsgesetzes (ProdSG) § 21 (1) hinsichtlich der Gewährleistung von Sicherheit und Gesundheit und entspricht den derzeit anerkannten Regeln der Technik.

(The product is in compliance with the judicial requirements of the Product Safety Law (ProdSG) § 21 (1) and the currently accepted rules of technology.)

Die Kennzeichnungspflichten des Produktes gemäß §6 ProdSG sind einzuhalten.

(The marking requirements of the product based on §6 ProdSG have to be observed.)

Bescheinigungsinhaber (Certificate Holder)

Scandinavian Business Seating AS
Fridtjof Nansens vei 12 (head office)
0301 OSLO
Norway

Markenname (Brandname)

HÅG

Fertigungsstätte (Manufacturing Site)

Scandinavian Business Seating AS
Sundveien
7374 Røros
Norway

Produkt (Product)

Büroarbeitsstuhl
Office work chair

Typbezeichnung (Type)

"HÅG Sofi", mit den Modellen / with models
"7210", "7220", "7230", "7240", "7250", "7260",
"7310", "7320", "7330", "7340", "7350", "7360"

Beschreibung (Description)

72x0 mit mittlere Rückenlehne / with medium backrest
73x0 mit hoher Rückenlehne / with high backrest
72x0 mit mittlere Rückenlehne / with medium backrest
73x0 mit hoher Rückenlehne / with high backrest

Prüfbericht-Nr. (Test Report No.)

FUHLFP2014-16392:2016-09-23

Geprüft nach (Tested according to)

EN 1335-1:2000+AC:02

EN 1335-2:2009

DIN 4550:2004

EN 1335-3:2009

PAK-Anforderung für GS (PAH requirement for GS) AfPS GS 2014:01 PAK

Gültig bis (valid until)

2021-10-09

Erstellt am (Issued on)

2016-10-10



81265

Intertek Deutschland GmbH
Dipl.-Ing. Peter Schlarb

Dem Zertifikat liegen die Allgemeinen Geschäftsbedingungen der Intertek Deutschland GmbH zu Grunde. Bitte beachten Sie die umseitigen Hinweise.
The General Business Conditions of Intertek Deutschland GmbH is an integral part of this certificate. Please also refer to the information overleaf.

Intertek Deutschland GmbH, Stangenstraße 1, 70771 Leinfelden-Echterdingen

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Tel.: +49 711 27311-0, Fax: +49 711 27311-559, E-Mail: gs@intertek.com, web: www.intertek.de/directory

LEED for Commercial Interiors (LEED-CI)

HÅG Sofi can provide 5 (or 6) LEED points



LEED for Commercial Interiors offers building owners, tenants, designer and contractors a guideline for creating more efficient, healthier interior spaces that promote comfort and productivity. Points are distributed across 7 major credit categories, where 2 of the categories are relevant for HÅG's products.

HÅG Sofi contributes to green building projects as follow:

Materials and Resources (MR)

MR 2: Construction Waste Management

LEED intent: To divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable material to appropriate sites.

Result: HÅG Sofi is made from more than 90% recyclable materials. All plastic parts are marked for easy identification and sorting. The only materials that are not recyclable are foam and textiles..

LEED points: Gives 2 points (out of 2).

MR 4: Recycled Content

LEED intent: To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Result: The HÅG Sofi contains more than 20% post consumer recycled materials.

LEED points: Gives 2 points (out of 2)

MR 5: Regional Materials

LEED intent: To increase demand for product that are assembled within the region, thereby supporting the regional economy and reducing the environmental impact resulting from transportation.

Result: HÅG products are assembled in Roros, Norway.

LEED points: Can give 1 point (out of 2) if the building project is within 500 miles/800 km from Roros.

Indoor Environmental Quality (IEQ)

IEQ 4.5: Low-Emitting Materials

LEED intent: To reduce the quantity of indoor air contaminants that are odorous, irritating and harmful to the comfort and well-being of installers and occupants.

Result: HÅG Sofi is designed to meet the GREENGUARD requirements.

LEED points: Gives 1 point (out of 1)

Our products can help a client to score points within the groups MR and IEQ. A practical problem for the client, however, is to weigh the chair's part of the complete interior. If, for example, a table also meets the requirement, it would be wrong to accumulate 2 points from the chair and 2 points from the table and thus score 4.

LEED CI - HÅG #3.2013

LEED for Commercial Interiors (LEED-CI)

HÅG Sofi Communication can provide 5 (or 6) LEED points



LEED for Commercial Interiors offers building owners, tenants, designer and contractors a guideline for creating more efficient, healthier interior spaces that promote comfort and productivity. Points are distributed across 7 major credit categories, where 2 of the categories are relevant for HÅG's products.

HÅG Sofi Communication contributes to green building projects as follow:

Materials and Resources (MR)

MR 2: Construction Waste Management

LEED intent: To divert construction and demolition debris from disposal in landfills and incineration facilities. Redirect recyclable recovered resources back to the manufacturing process and reusable material to appropriate sites.

Result: HÅG Sofi is made from more than 90% recyclable materials. All plastic parts are marked for easy identification and sorting. The only materials that are not recyclable are foam and textiles..

LEED points: Gives 2 points (out of 2).

MR 4: Recycled Content

LEED intent: To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Result: The HÅG Sofi contains more than 20% post consumer recycled materials.

LEED points: Gives 2 points (out of 2)

MR 5: Regional Materials

LEED intent: To increase demand for product that are assembled within the region, thereby supporting the regional economy and reducing the environmental impact resulting from transportation.

Result: HÅG products are assembled in Roros, Norway.

LEED points: Can give 1 point (out of 2) if the building project is within 500 miles/800 km from Roros.

Indoor Environmental Quality (IEQ)

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LEED intent: To reduce the quantity of indoor air contaminants that are odorous, irritating and harmful to the comfort and well-being of installers and occupants.

Result: HÅG Sofi is designed to meet the GREENGUARD requirements.

LEED points: Gives 1 point (out of 1)

Our products can help a client to score points within the groups MR and IEQ. A practical problem for the client, however, is to weigh the chair's part of the complete interior. If, for example, a table also meets the requirement, it would be wrong to accumulate 2 points from the chair and 2 points from the table and thus score 4.

LEED CI - HÅG #4.2013



MÖBELFAKTA INTYG

.....

PRODUKTNAMN: HÅG SoFi
Arbetsstol
72xx, 73xx
Låg rygg, hög rygg
Kan levereras med armstöd och hög rygg med nackstöd.

FÖRETAG: Scandinavian Business Seating AB

REG.NUMMER: 0120130913

ANVÄNDARMILJÖ: Kontorsmiljö

GILTIGHET: 2013-09-13 - 2018-09-13 under förutsättning att möbeln och kraven i Möbelfakta ej ändrats. Vid ändring gäller en övergångsperiod på 12 månader.

.....

PRODUKTEN HAR DEKLARERATS OCH GODKÄNTS ENLIGT KRITERIERNA I MÖBELFAKTA VER. 2015-05-01.

KVALITET – MÖBLERNA LEVER UPP TILL INTERNATIONELLA TEKNISKA STANDARDER

MILJÖ – TILLVERKNINGEN ÄR MILJÖANPASSAD I ALLA LED, FRÅN RÅVARA TILL FÄRDIG MÖBEL

SOCIALT ANSVAR – ALLA PARTER I PRODUKTIONSKEDJAN FÖRBINDER SIG ATT FÖLJA FN:S DIREKTIV THE GLOBAL COMPACT

.....

ROBIN LJUNGAR, Miljö- och hållbarhetschef, TMF