NORWEGIAN ACCREDITATION TEST 275

Test Report

SCANDINAVIAN BUSINESS SEATING

Test Report No. 2014-10-14-001

Customer	Scandinavian Business Seating AS Sundveien 7374 Røros, Norway
Customer contact	Product & Brand Concept v/ Christian Eide Lodgaard
Test item	Håg H05
Test item ID:	H05 5200, 5600
Serial No.	5110053777-1, 5110053777-2
Order No.	2014-10-14-001
Date of receipt.	2014-10-20
Testing commenced / finished	2014-10-22 / 2015-01-12
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 Valid to: 2018-04-18 Registration No.: Test 275
Tested according to.	ANSI/BIFMA X5.1-2011 Type I/III
Test result.	**The test item passed the test specifications**

Tested by:			**Approved by:**		
2015-01-19	John Anders Spencer		2015-01-19	Christian Andersson	
2015-01-19	John Anders Spencer		2015-01-19	Christian Andersson	
Date	**Name**	**Sign.**	**Date**	**Name**	**Sign.**

Additional information.
The test results refer only to the samples tested.

Abbreviations		
	P	**=Passed**
	F	**=Failed**
	NA	**=Not applicable**
	NT	**=Not tested**

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

Brief description of the test item upon receipt.

Håg H05
Office work chair with tilt mechanism, upholstered seat and backrest, adjustable armrests, seat height and depth, backrest height and depth, tilt tension and lock.

- 50mm castors made by Jenp You.
- 5-star aluminium base.
- Stabilus 150mm Type A gas spring.
- Seat mech with levers for adjusting.
    - Tilt tension.
    - Tilt lock (3 positions).
    - Seat height.
    - Seat depth and backrest height synchronously by rotatable handle.
- Upholstered seat and backrest.
- Backrest height manually adjustable independent of seat depth. Approx. +/-15mm.
- Armrests adjustable in height and depth, armrest support made of steel.
- 5200: low backrest, fully upholstered.
- 5600: high backrest, fully upholstered with headrest.

Remarks:
There were no remarks upon receipt

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 considered to be a type I and type III chair due the lockable tilt option.

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

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.	**P**
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.	
	Remarks The backrest post bended approx. 20° rearwards during Proof load but was considered to be no sudden and major change in the structural integrity of the chair. See pic 1	
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.	**P**
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.	
	Remarks The backrest post bended approx. 10° rearwards during Proof load but was considered to be no sudden and major change in the structural integrity of the chair. See pic 2	
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** 11,120 N (2500 lbf.) one (1) minute x 2.	**P**
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.	
	Remarks See pic 3	

Section	Requirements / Remarks	Result
8	**Drop Test – Dynamic**	P
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.).	
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 pic 4	
9	**Swivel Test – Cyclic**	P
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°.	
9.5	**Acceptance Level** There shall be no loss of serviceability.	
	Remarks Tested first half of the cycles with the seat in highest position, second half of the cycles in lowest position. See pic 5	
10	**Tilt Mechanism Test – Cyclic**	P
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.	
10.5	**Acceptance Level** There shall be no loss of serviceability to the tilt mechanism.	
	Remarks See pic 6	

Section	Requirements / Remarks	Result
11	**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.	
11.1	**Applicability** These tests apply to all chair types.	
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.	
11.3	**Impact Test** 57 kg (125 lb.) test bag falling 30 mm (1.2 in.) for a total of 100,000 cycles.	P
11.4	**Front Corner Load-Ease Test – Cyclic – Off-centre** 734 N (165 lbf.) force for a total of 40,000 alternating cycles.	P
11.5	**Acceptance Level** There shall be no loss of serviceability to the chair after completion of both the impact and load-ease tests.	
	Remarks See pic 4,7	
12	**Stability Tests**	
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.	
12.2	**Purpose of test** The purpose of these tests is to evaluate the front and rear stability of chairs.	
12.3	**Rear Stability**	
12.3.1	**Rear Stability Test for Type III Chairs**	P
12.3.1.3	**Acceptance level** The chair shall not tip over.	
12.3.2	**Rear Stability Test for Type I and II Chairs**	P
12.3.2.3	**Acceptance level** The chair shall not tip over.	
12.4	**Front Stability**	P
12.4.4	**Acceptance Level** The chair shall not tip over as the result of the force application.	

Remarks	Requirement	Result
Rear Stability Test for Type III Chairs	126N	209N
Rear Stability Test for Type I and II Chairs	>13 ISO discs	>14 ISO-discs
Front Stability	600N+20N	600N+34N

Remarks
For the rear stability for type I and III chairs, model 5600 with headrest was used due to the added weight from the headrest.
For the front stability, model 5200 was used with the armrests removed.
See pic 8-10

Section	Requirements / Remarks	Result
13	**Arm Strength Test - Vertical – Static**	
13.1	**Applicability** This test applies to all chairs with arms.	
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). **Functional Load** 750 N (169 lbf.), one (1) minute. **Proof Load** 1125 N (253 lbf.), one (1) minute.	
13.5	**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. **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
	Remarks See pic 11	
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.	P
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.	
	Remarks See pic 12	
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	P
15.5	**Acceptance Level** There shall be no loss of serviceability.	
	Remarks See pic. 13-14	

Section	Requirements / Remarks	Result
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	P
16.5	**Acceptance Level** There shall be no loss of serviceability.	
	Remarks See pic. 15	
17	**Caster/Chair Base Durability Test – Cyclic**	
17.1	**Caster/Chair Base Durability Test for Pedestal Base Chairs**	
17.1.1	**Applicability** This test applies to pedestal base chairs with casters.	
17.1.2	**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. **Test procedure** 113 kg (250 lb.) load on seat. For a total of 100.000 cycles	P
17.1.5	**Acceptance Level** **Durability cycling** There shall be no loss of serviceability. **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.	
	Remarks See pic 16	
17.2	**Caster/Chair Frame Durability Test for Chairs with Legs**	
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).	
17.2.2	**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. **Test procedure** 113 kg (250 lb.) load on seat. For a total of 100.000 cycles	NA
17.2.5	**Acceptance Level** **Durability cycling** There shall be no loss of serviceability. **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.	
	Remarks	

Section	Requirements / Remarks	Result
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** **Functional load** 334 N (75 lbf.), one (1) minute. **Proof load** 503 N (113 lbf.), one (1) minute.	
18.4	**Side Load Test** **Functional load** 334 N (75 lbf.), one (1) minute. **Proof load** 503 N (113 lbf.), one (1) minute.	
18.5	**Acceptance Level - Front and Side Load Tests** **Functional Load** Functional load(s) applied once in each direction shall cause no loss of serviceability. **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.	
	Remarks	
19	**Footrest Static Load Test – Vertical**	NA
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.	
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**	NA
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.	
	Remarks	

Section	Requirements / Remarks	Result
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.	**P**
21.4	**Acceptance level** There shall be no loss of serviceability to the chair.	
	Remarks See pic 17	
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.	**NA**
22.4	**Acceptance Level** There shall be no loss of serviceability to the unit.	
	Remarks	
23	**Tablet Arm Chair Static Load Test**	
23.1	**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.	
	Test procedure 68 kg. (150 lb.), one (1) minute	
23.4	**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.	**NA**
	Remarks	
24	**Tablet Arm Chair Load Ease Test – Cyclic**	
24.1	**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.	
	Test procedure 343 N (77 lbf.), for at total of 100,000 cycles.	**NA**
24.4	**Acceptance Level** There shall be no loss of serviceability to the chair and/or tablet arm.	
	Remarks	

End of test report

Annex I – Photo documentation


Pic 1


Pic 2


Pic 3


Pic 4


Pic 5

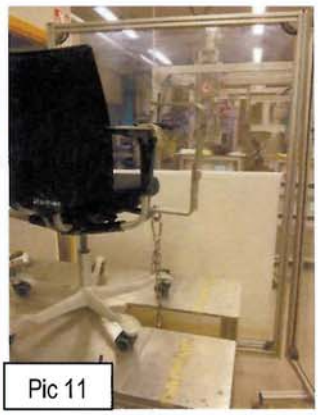

Pic 6


Pic 7

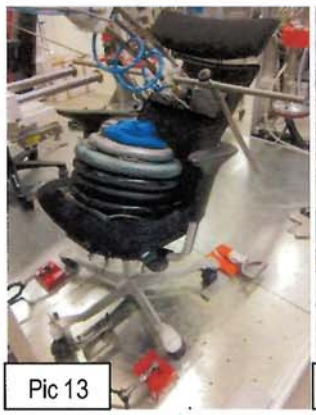

Pic 8


Pic 9


Pic 10


Pic 11


Pic 12


Pic 13


Pic 14


Pic 15

Pic 16

Pic 17

ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025

Owner of the declaration	Scandinavian Business Seating AS
Program holder	The Norwegian EPD Foundation
Declaration number	NEPD00036E Rev. 1
Issue date	17.12.2014
Valid to	17.12.2019

HÅG H05 Communication 5300

Product

Scandinavian Business Seating AS

Owner of the declaration:

General information

Product
HÅG H05 Communication 5300

Owner of the declaration:
Scandinavian Business Seating AS
Contact person: Laura Fouilland
Phone: +47 40 41 56 13
E-mail: Laura.Fouilland@sbseating.com

Program holder:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo
Phone: +47 23 08 80 00
e-mail: post@epd-norge.no

Manufacturer
Scandinavian Business Seating AS

Declaration number:
NEPD00036E Rev. 1

Place of production:
7366 Røros, Norway

This declaration is based on Product Category Rules:
PCR for Seating Solution, NPCR 003 extended version 2013, in accordance with recommendations by the Norwegian EPD Foundation

Management system:
ISO 14001, Certificate No.2010-SKM-AR-1487 from the Accredited Unit: DNV Certification AB, Sweden.

Declared unit:

Org. No:
No 928 902 749

Declared unit with option:

Issue date:
17.12.2014

Functional unit:
Production of one seating solution provided and maintained for a period of 15 years.

Valid to:
17.12.2019

The EPD has been worked out by:
Østfoldforskning AS, Mie Vold

Comparability:
EPD from programmes other than the Norwegian EPD Foundation may not be comparable

Year of study:
2014

Verification:
Independent verification of data and other environmental
externally ☑ internally ☐

Approved

Senior Research Scientist, Cecilia Askham
(Independent verifier approved by EPD Norway)

Dagfinn Malnes
Managing Director of EPD-Norway

Functional unit:
Production of one seating solution provided and maintained for a period of 15 years.

Key environmental indicators (A1-A3)	Unit	Cradle to gate A1 - A3
Global warming	kg CO_2 eqv	73
Total energy use	MJ	921
Substances from the REACH Candidate list	*	
Amount of recycled materials	%	38 %

* The product contains no substanses from the REACH Candidate list or the Norwegian priority list

Product

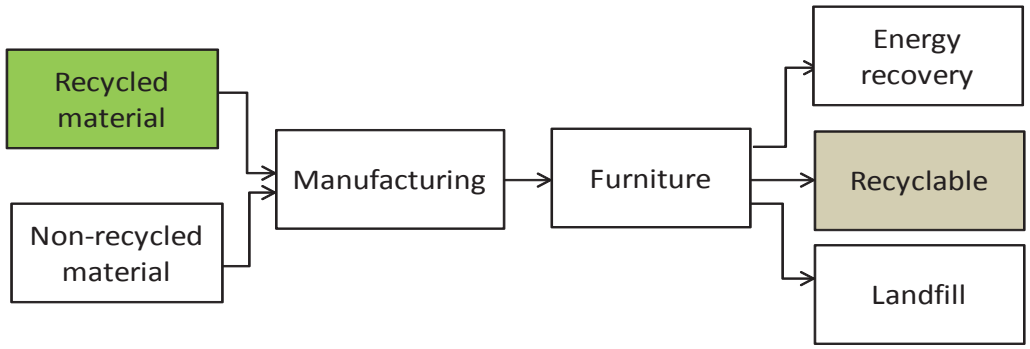
Product description:
Think fresh and act fast. HÅG H05 is your chair. It's ingeniously simple to adjust. With only one lever and one wheel, you can easily personalise your sitting experience. A simple and clever design, equipped with HÅG's unique tilting mechanism - the HÅG movement. Great comfort and complete freedom of movement at work has never been this easy. Your workplace will be complete with a HÅG H05 Communication, a visitor's chair that matches your work chair. This collection provides a personal and active sitting solution for all types of work environments.

Technical data:
Total weight: 19,2 kg (21,9 kg with packaging)
More information:
http://www.hag-uk.co.uk/products/hag-h05/hag-h05-5300/

Market:
Europe and U.S.A.

Reference service life:
15 years

Materials	kg	%
Steel	9,0	47 %
Steel	4,5	23 %
Plast	0,1	1 %
Textile	4,5	24 %
Cardboard	0,2	1 %
Various	0,9	5 %
	0,0	0 %
	0,0	0 %
Total product	19,2	100 %
Cardboard (packaging)	2,8	
Total product and packaging	21,9	



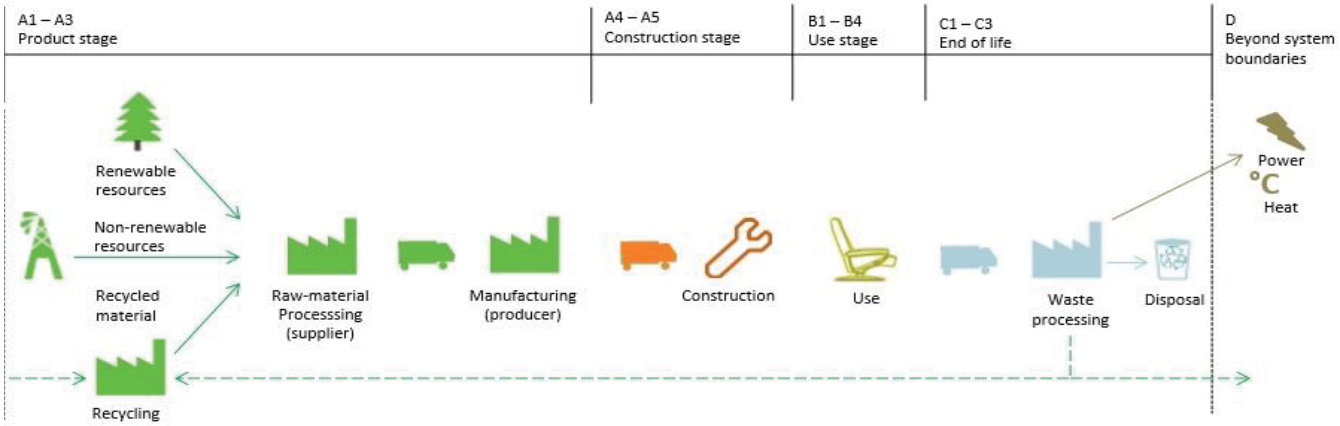
Materials	Recycled share for each material	Recycled amount	Recycled share in product	Recyclable share for each material	Recyclable amount	Recyclable share in product
Unit	%	kg	%	%	kg	%
Steel	35 %	3,2	14 %	100 %	9,0	1 %
Aluminium	70 %	3,1	14 %	100 %	4,5	30 %
Polypropylene	0 %	0,0	0 %	100 %	2,2	9 %
Polyurethane	0 %	0,0	0 %	0 %	0,0	0 %
Other plastic	83 %	1,0	5 %	100 %	1,2	48 %
Textile	0 %	0,0	0 %	100 %	0,2	3 %
Varnish	0 %	0,0	0 %	0 %	0,0	0 %
Not included	0 %	0,0	0 %	0 %	0,0	0 %
Total product	**-**	**7,3**	**38 %**	**-**	**17,1**	**89 %**
Cardboard (packaging)	75 %	2,1		100 %	2,8	
Total product and packaging		**9,4**	**43 %**	**-**	**19,9**	**91 %**

In manufacture, about 43% of the total mass of the chair and its packaging is recycled material. At the end of the chair's life, about 91% of its total mass will consist of materials that can be recycled.

LCA: Calculation rules

Functional unit:
Production of one seating solution provided and maintained for a period of 15 years.

System boundary:
Life cycle stages included are described in figure and through the corresponding letter and number designations in the declaration (see figure below).



The seating solution components are assembled at SBSeating's facility in Røros.

Data quality:
Specific data from suppliers and manufacturer 2011/2012 are used in the EPD analysis. Database data from Ecoinvent 3 is used as the basis for raw material and energy carrier production.

Cut-off criteria:
All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances

Allocation:

- Where virgin materials are used, emissions and energy consumption connected with extraction and production are included.
- Where recycled materials are used in the product, emissions and energy consumption related to the recycling process are included.
- Emissions from incineration of waste are allocated to the product system that uses the recovered energy. This is a deviation from the PCR for Ecoinvent processes, where emissions from incineration are allocated to the product system in which the waste arises.
- Emissions from incineration of waste without energy recovery are allocated to the production system where the waste arises.

Additional information
According to the PCR the output should include both impact and the largest emissions (by mass) to air and water. Because of the format of the EPD the largest emissions are not presented.
The methods for calculating the environmental impact are IPCC 2007 for global warming and CML 2001 for other impact categories.

Material recycling at end of life (D) is not within the system boundaries, but as a scenario. The avoided emissions from replaced virgin material are included in D.

LCA: Scenarios and additional technical information

Transportation to an average customer in Copenhagen is 1000 km (A4). The use stage is represented by a scenario and includes vacuum cleaning of textiles once a month. The PCR does not provide detailed guidelines for what should be included in the use stage. In the end of life stage, the transport distance for waste to waste processing is 72 km (C1).
The reuse, recovery and recycling stage is beyond the system boundaries (D). It is assumed that the chair is dismantled and the materials recycled or combusted according to the general Norwegian treatment of industrial waste. This calculation includes CO2 emissions and energy only (C1-D). Disassembly is a manual process with no impacts on the results of the LCA and is therefore not included. The transport distance to reuse, recovery or recycling varies for each material, but the average distance is 373 km.

LCA: Results

The following information describes the scenarios in the different modules of the EPD.

System boundaries (X=included, MND=modul not declared, MNR=modul not relevant)

Product stage			Construction stage		Use stage				End of life			Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Construction	Maintenance	Repair	Replacement	Operational energy use	Transport	Waste Processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	D
x	x	x	x	MNR	x	MNR	MNR	MNR	x	x	x	x

Environmental impact

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	67	2,1	3,3	73	3,0	6,1E-03	1,7	12,0	0,1	14	-11
ODP	2,44E-05	1,34E-07	2,70E-07	2,48E-05	1,93E-07	1,89E-10					-3,10E-07
POCP	2,52E-02	2,25E-04	7,91E-04	2,62E-02	2,13E-04	1,16E-06					-2,55E-03
AP	1,31E-01	1,65E-03	8,08E-03	1,40E-01	2,19E-03	5,04E-06					-9,55E-03
EP	3,76E-01	8,86E-03	1,22E-02	3,97E-01	9,95E-03	3,44E-05					-3,99E-02
ADPM*	1,73E-03	9,23E-09	1,05E-05	1,74E-03	1,36E-08	2,04E-08					-3,84E-06
ADPE	831	29	41	901	41	0	27	64	2	92	-249

*Some processes included are based on data from EcoInvent 3.0.1. which is lacking data for renewable resources. The correct number of ADPM in the table above and RPEE, RPEM and TPE in the table below may be higher. See referance [5] for details. The lack of data will be adressed in a new version of Ecoinvent 3, which not was available when this declaration was carried out.

GWP Global warming potential (kg CO2-eqv.); **ODP** Depletion potential of the stratospheric ozone layer (kg CFC11-eqv.); **POCP** Formation potential of tropospheric photochemical oxidants (kg C2H4-eqv.); **AP** Acidification potential of land and water (kg SO2-eqv.); **EP** Eutrophication potential (kg PO4-3-eqv.); **ADPM** Abiotic depletion potential for non fossil resources (kg Sb -eqv.); **ADPE** Abiotic depletion potential for fossil resources (MJ)

Resource use**

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE*	16	0	3,91E-03	16	0,00	9,26E-02					-3,4
RPEM*	4,6	0,00	19	24	0,00	2,27E-05					-0,26
TPE*	20	0	19	40	0,00	9,26E-02					-3,7
NRPE	837	29	44	911	42	7,86E-02					-254
NRPM	159	0	0,13	159	0,00	9,01E-03					0
TRPE	997	29	45	1 070	42	8,76E-02					-254
SM	8,16	0	2	10,25	0	2,85E-06					-6,8
RSF	0	0	0	0	0	0					0
NRSF	-5,6	0	0	-5,6	0	3,96E-02					0
W	2,1	5,52E-03	0,10	2,3	7,97E-03	4,58E-03					-54

*See above

* Energy is given in MJ in accordance with recommendations in the Norwegian EPD progam.

RPEE Renewable primary energy resources used as energy carrier (MJ); **RPEM** Renwable primary energy resources used as raw materials (MJ); **TPE** Total use of renewable primary energy resources (MJ); **NRPE** Non renewable primary energy resources used as energy carrier (MJ); **NRPM** Non renewable primary energy resources used as materials (MJ); **TRPE** Total use of non renewable primary energy resources (MJ); **SM** Use of secondary materials (kg); **RSF** Use of renewable secondary fuels (MJ); **NRSF** Use of non renewable secondary fuels (MJ); **W** Use of net fresh water (m3)

End of life - Waste and Output flow

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	1,83E-02	2,02E-05	9,81E-05	1,84E-02	2,91E-05	5,83E-06					-0,17
NHW	37	0,0	0,6	37	0,0	7,61E-04			3,8	3,8	-0,69
RW	0	0	0	0	0	0					0
CR	0	0	0	0	0	0					0
MR	4,25E-03	0	1,2	1,2	0	0		14		14	0
MER	0	0	0,29	0,29	0	0		3,8		3,8	0
EEE	0	0	0	0	0	0					0
ETE	0	0	0	0	0	0					108

HW Hazardous waste disposed (kg); **NHW** Non hazardous waste disposed (kg), **RW** Radioactive waste disposed (kg); **CR** Components for reuse (kg); **MR** Materials for recycling (kg); **MER** Materials for energy recovery (kg); **EEE** Exported electric energy (MJ); **ETE** Exported thermal energy (MJ)

Specific Norwegian requirements

Electricity

The following data from ecoinvent v3 (June 2012) for Norwegian production mix included import, low voltage is used; Energy/Electricity country mix/Low voltage/Market: Electricity, low voltage {NO}| market for | Alloc Def, U. Production of transmission lines, in addition to direct emissions and loss in grid are included. Characterisation factors stated in EN 15804:2012+A1:2013 are used. This gives following greenhouse gas emissions: 24 g CO2-eqv/kWh.

Dangerous substances

None of the following substances have been added to the product: Substances on the REACH Candidate list of substances of very high concern (of '16.06.2014) substances on the Norwegian Priority list (pr.17.06.2013) and substances that lead to the product being classified as hazardous waste. The chemical content of the product complies with regulatory levels as given in the Norwegian Product Regulations.

Indoor environment

http://greenguard.org/en/ProductDetail.aspx?productID=4563&BrandID=11

Climate declaration

Not relevant

Bibliography

[1] NS-EN ISO 14025:2006, Environmental labels and declarations-Type III environmental declarations-Principles and procedures.

[2] NS-EN ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines

[3] EN 15804:2012 + A1:2013 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

[3] PCR for seating solution: PRODUCT-CATEGORY RULES(PCR) for preparing an environmental product declaration (EPD) for Product Group “Seating solution”, PCR 2008:NPCR 003, extended version

[4] Vold, M.; Livsløpsdata for 6 sitteløsninger fra Håg. Bakgrunnsdata for miljødeklarasjon (EPD), Østfoldforskning AS, OR 17.14 Fredrikstad.

[5] Raadal, H. L., Modahl, I. S., Lyng, K. A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. OR 18.09. ISBN : 978-82-7520-611-2, 82-7520-611-1

http://greenguard.org/en/ProductDetail.aspx?productID=4563&BrandID=11

epd-norge.no The Norwegian EPD Foundation	**Program holder:** The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norge	Phone: e-mail: web	+47 23 08 80 00 post@epd-norge.no www.epd-norge.no
SCANDINAVIAN BUSINESS SEATING	**Owner of the declaration** Scandinavian Business Seating AS P.O Box 5055 majorstua, No 3001 Oslo Contact person: Laura Fouilland	Phone: Fax e-mail: web	+47 40 41 56 13 +47 22 59 59 59 info@sbseating.com http://www.sbseating.com/
Østfoldforskning SUSTAINABLE INNOVATION	**Author of the Life Cycle Assessment** Østfoldforskning AS Stadion 4, 1671 Kråkerøy Contact person: Mie Vold	Phone: Fax e-mail: web	69 35 11 00 69 34 24 94 post@ostfoldforskning.no www.ostfoldforskning.no

CERTIFICATE
OF COMPLIANCE

HAG

HÅG H05

Restrictions:

4562-410
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

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

Criteria	CAS Number	Maximum Allowable Predicted Concentration	Units
TVOC(A)	-	0.25	mg/m³
Formaldehyde	50-00-0	30.7 (25 ppb)	µg/m³
Total Aldehydes (B)	-	0.05	ppm
4-Phenylcyclohexene (C)	4994-16-5	3.25	µg/m³
Individual VOCs (D)	-	1/10th TLV	-

(A) Defined to be the total response of measured VOCs falling within the $C_6 - C_{16}$ 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).

Institut für Warenprüfung
und Qualitätsüberwachung
Möbelprüfinstitut

LGA
Landesgewerbeanstalt Bayern

Test report

Nr. **IWQ 330 1531**

Reported to: HÅG asa
P.O. Box 50 55 MAJ
0301 Oslo

Object: Office swivel chair range "H 05"
(2 samples supplied by the manufacturer)

Order: Test to British Standard 5459/Part 2, ed. 1990

Findings:

The submitted samples were tested according to the guidelines laid out in British Standard BS 5459, Part 2, ed. 1990 for test level "S" in addition to the tests following EN 1335 Part 1, 2 and 3 (see test report 330 1229)

All tests were carried out under "worst case" conditions.

The submitted samples meet the requirements of test level "S" of British Standard BS 5459 : Part 2 : 1990.

The following pages contain technical data and details of the test.

Nürnberg, 26.09.2000
IWQ / hy/ kl / hz

LGA - Bereich PRODUKTE
Institut für Warenprüfung
und Qualitätsüberwachung

Referat IWQ MBL

Dipl.-Ing. (FH) R. Heym

LANDESGEWERBEANSTALT BAYERN * LGA * NÜRNBERG *
MÖBEL-PRÜF-INSTITUT

Test technician

Eberhard Klöber

The test report consits of 4 pages.

L G A • IWQ • Tillystraße 2 • D-90431 Nürnberg
Tel. (09 11) 65 55 - 8 39 • Fax (09 11) 65 55 - 8 34 • eMail: wqkl@lga.de

Institut für Warenprüfung
und Qualitätsüberwachung
Möbelprüfinstitut

LGA
Landesgewerbeanstalt Bayern

IWQ MBL 330 1531

Test results

Object

Article:	Office swivel chair
Type/model:	Modelrange "H 05"
Sample Number:	2 chairs
delivered:	29.06.00
delivered by:	HÅG

Scope of tests

General examination

Test to BS 5459, Part 2, ed. 1990

Applicability of test results

The test results refer solely to the sample tested.

Measurement incertainty

Unless otherwise stated all dimensions are measured to an accuracy according to DIN 7168-g for old constructions resp. DIN ISO 2768 part 1 "c" for new constructions. For all other physical values the measurement incertainty is $< \pm 5$ %.

General examination

Brief description of the sample:

Height adjustable office swivel chair with synchron mechanism, with or without height adjustable arm.

- Seat height adjustable by means of gas spring from Suspa

- denomination of gas spring: 17-04-19 DIN 4550-4

- Seat with tilt mechanism, initial tension adjustable by means of hand levers, blockable in several positions, seat depth adjustable by means of hand wheel (sliding seat)

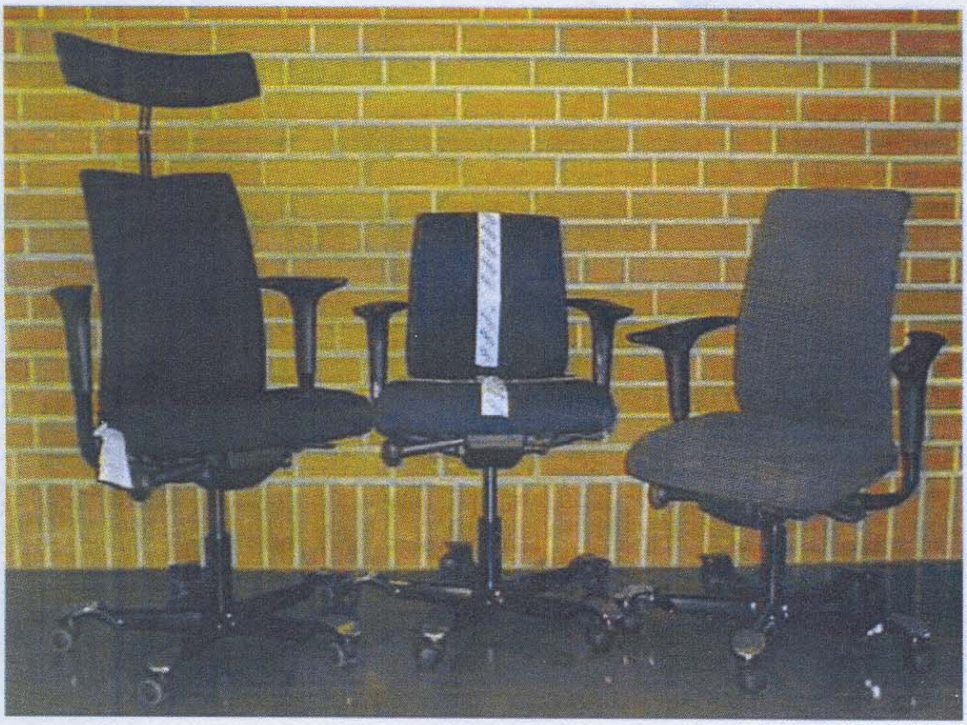
- Seat and back padded and upholstered

- Back rest height adjustable

- Chair base made of die cast light metal

- 5 break unloaded twin wheel casters type „H“ or „W“
- denomination of the casters: ./.
- caster marking: GR
- caster manufacturer: Guy Raymond

- Further facts: optional height adjustable neck rest with adjustable tension



Prüfkriterium / Anforderung	Ergebnis	+ positiv – negativ ./.entfällt

Requirements to Para. 2.16 BS 5459, Part 2, ed. 1990

+

Summary of results
Test following British Standard BS 5459.
Part 2, ed. 1990

Summary of tests

Note:

Tests were carried out to the same sample, first 9b - Fore and Aft Safety Test, than 9a Side to Side Safety!

Test	Description	Test conditions	Test level S
9 a	Side to Side Safety Test	Vertical load V_a	1200 N
		max. number of cycles	500 000
9 b	Fore and Aft Safety Test	Seat load	
		Chairs with back rest inclination max. 70°, other chairs	1500 N x cos Θ 1400 N
		Back rest load	
		chairs with back rest inclination max. 70°; other chairs	1500 N x sin Θ 500 N
		Seat front edge load	1400 N
		max. number of cycles	500 000

During side to side safety test a fracture started at the chassis after 210000 cycles considered to be a safe failure

Certificate

Prüfbescheinigung nach dem Produktsicherheitsgesetz

Test Certificate in compliance with the Product Safety Law

Bescheinigungs-Nr. (Certificate No.): **15FUP1003-01**

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)
HAG

Fertigungsstätte (Manufacturing Site)
Scandinavian Business Seating AS
Sundveien
7374 Røros
Norway

Produkt (Product)
Büroarbeitsstuhl
Office work chair

Typbezeichnung (Type)
HAG H05 5100, HAG H05 5200, HAG H05 5300, HAG H05 5400, HAG H05 5500, HAG H05 5600

Beschreibung (Description)
625W x 815H x 550D, 625W x 820H x 550D, 625W x 890H x 550D, 625W x 885H x 550D, 625W x 970H x 550D, 625W x 965H x 550D
(Einzelheiten siehe Anhang / details see attachment)

Prüfbericht-Nr. (Test Report No.)
FUHLFP2014-15823R:2015-07-03

Geprüft nach (Tested according to)
EN 1335-1:2000+AC:02
EN 1335-2:2009
EN 1335-3:2009
PAK-Anforderung für GS (PAH requirement for GS) AfPS GS 2014:01 PAK

Gültig bis (valid until)
2020-07-08
Erstellt am (Issued on)
2015-07-09

75183
Intertek Deutschland GmbH
Dipl.-Ing. Peter Schlarb

Anhang zur Bescheinigung Nr.: 15FUP1003-01
(Attachment to Certificate No.)

Die Modellreihe "HAG H05) umfasst folgende Typbezeichnungen (model range "HAG H05" consist of types):
(1) "5100"
(2) "5200"
(3) "5300"
(4) "5400"
(5) "5500" und/and
(6) "5600"

(1) 625W x 815-941H x 550D, 12.5 kg, niedere teilweise gepolsterte Rückenlehne (low backrest, partly upholstered backrest)

(2) 625W x 820-946H x 550D, 13.0 kg, niedere, gepolsterte Rückenlehne (low backrest, complete upholstered backrest)

(3) 625W x 890-1016H x 550D, 16.0 kg, mittelhohe, teilweise gepolsterte Rückenlehne (middle high backrest, partly upholstered)

(4) 625W x 885-1011H x 550D, 16.5 kg, mittelhohe, gepolsterte Rückenlehne (middle high backrest, complete upholstered)

(5) 625W x 970-1096H x 550D, 18.0 kg, hohe, teilweise gepolsterte Rückenlehne (high backrest, partly upholstered)

(6) 625W x 965-1091H x 550D, 19.0 kg, hohe, gepolsterte Rückenlehne (high backrest, complete upholstered)

Institute for Product Testing
and Quality Control
Furniture Test Institute

LGA

Test-report

Q IWQ MBL 736 1364e

Reported to: HÅG asa

7374 Roros
Norway

Object: Office work chair model range "H05"
(2 samples supplied by the client)

Order: Test of dimensions according to NPR 1813:2004

Findings:

The office work chairs of model range "H05" (NPR version) **meet** the dimensional requirements of the dutch practice guidelines NPR 1813, ed. 04.2004
The evaluation of the dimensions to NPR 1813 was carried out supplementary to the configuration for the existing GS-mark to DIN EN 1335 in accordance with the DIN EN 1335, part 1, ed. 08.2002.
For the GS-version, the results of strength and durability test following DIN EN 1335, part 2 and 3, ed. 08.02 and DIN 4550, ed. 05.92 respecting the actual state of safety technique are reported in our test report IWQ MBL 330 1229.

The office work chair complies with type A of DIN EN 1335, part 1. Thus the requirements for ergonomic design of the EU-Video Display Terminal Directive as laid out in DIN EN ISO 9241 part 5, ed. 08.1999 are met.

Nuremberg, 2006-06-22
Q IWQ MBL hy/ ra/şe

LGA QualiTest GmbH
Furniture Test Institute

Dipl. Ing. (FH) R. Heym
Head of Competence Centre

LGA QualiTest GmbH Möbelprüfinstitut

F. Rackl

Franz Rackl
Test Officer

LGA QualiTest GmbH • Tillystraße 2 • 90431 Nürnberg • http://www.lga.de
Tel (0911) 655 - 5839 • Fax (0911) 655 -5834 • eMail: reimund.heym@lga.de

Sitz und Registergericht Nürnberg HRB 20544
Geschäftsführer: Peter Röckl, Hans-Hermann Ueffing
Ein Unternehmen der LGA® - Gruppe
(LGA - Körperschaft des öffentlichen Rechts).

Test Results

Object:

Article:	Office work chair
Type/Model:	H05 H05 5100 Low back partly upholstered H05 5200 Low back fully upholstered H05 5300 Medium back partly upholstered H05 5400 Medium back fully upholstered H05 5500 High back partly upholstered H05 5600 High back fully upholstered
Number of samples:	2
delivered:	17.05.2006
delivered by:	HÅG
Reg. No.:	365 / 2 and 3

Scope of tests

General examination

Dimensions to NPR 1813:2003

Applicability of test results

The test results refer solely to the samples tested. The digital pictures shown in this report are for additional information only and are not part of this report.

Measurement incertainty

Unless otherwise stated all dimensions are measured to an accuracy according to DIN 7168-g for old constructions resp. DIN ISO 2768 part 1 "c" for new constructions. For all other physical values the measurement incertainty is < 5 %. The test has been carried out at standard climate 23 °C/50 % r.h.

General examination

Brief description of the sample

- Seat height adjustable by means of gas cylinder from SUSPA

- Denomination of gas cylinder:
  Part no. K70202, sample order no. 143617
  300 N, DIN 4550-4
- Seat mechanism with tilt function,
- Initial tension adjustable by means of hand levers, blockable
- Seat depth (Sliding seat) and backrest simultanous adjustable by hand wheel, but also individually adjustable
- Seat and back padded and upholstered
- Arm rests adjustable in height and width.
- Base made of die cast light metal
- 5 brake unloaded twin wheel castors Type H and W
- Marking of the castors: GR
- Castor Manufacturer: Guy Raymond
- Other characteristics: Flexible head support optional

Model H5300

Backrests H5100, H5500

Model H5300

Backrests H5200, H5600

Prüfkriterium / Anforderung			Ergebnis	+ positiv - negativ
Technical Test - HÅG H05 - **Model** 5100, 5200, 5300, 5400, 5500, 5600 **Dimensions following NPR 1813 - Table A - Office work chairs adjustable**				
Denomination/Code letter	**Nominal value (mm)**		**Actual Value (mm)**	
Seat height	**a**	410 - 550	407 - 548	+
Seat depth	**b**	380 - 480	387 - 480	+1)
Depth of seat surface fix	**c**	440 min.	435	+1)
Seat width	**d**	400 min.	475	+1)
Seat inclination	**e**	≤ +3° to ≥ -7°	+5,5° - -14°	+1)
Height of lumbar support „S“	**f**	≤ 170 to ≥ 230	150 - 230	+1)
Height of back pad	**g**	370 min.	445/500/560 partly upholstered 460/510/590 fully upholstered	+ +
Height of upper edge of the back rest above the seat	**h**	430 min.	430 - 510	+1)
Back rest width	**i**	360 min.	360 partly upholstered 370 fully upholstered	+ +
Back rest radius horizontal	**k**	400 min.	400	+1)
Back rest inclination	**l**	15° min.	20°	+1)
Arm rest length	**n**	200 min.	200	+
Arm rest width	**o**	50 min.	105	+
Arm rest height above the seat	**p**	200 - 300	200 - 305	+2)
Adjustment range		100 min	105	+2)
Distance of arm rest to seat front edge	**q**	200 min.	175 - 260	+
Clear width between the arms	**r**	360 - 510..	360 - 505	+
Maximum offset of the underframe	**s**	365 max (415 max)	373	+
Stability dimension	**t**	195 min.	241	+

The supplementary dimensional evaluation of the components divergent to the GS-label- version of test report 330 1229 was carried out in the reference position of the seat close to the horizontal.
1) Dimension from test report 330 1229
2) Dimension including height gained by width adjustment

Intertek Consumer Goods GmbH · Würzburger Straße 152 · 90766 Fürth · Germany

Scandinavian Business Seating AS
Sundveien, N-7374 Røros,
Norway

Fürth, 30.12.2014/ 03.07.2015

Test report no. FUHLFP2014-15823R
Receipt of sample: 28.11.2014; period of investigation: 28.11.2014 – 30.12.2014

Overall laboratory management: Kerstin Scharrer / Hardlines Laboratory: Adem Durmaz

Test item: "HÅG H05" Office work chair

Test General safety tests for the obtaining of the GS-Certificate

Determination:

Essential components of the tests were the safety, functionality, fitness-for-use and ergonomic properties. Basis of the tests were the following references: EN 1335, part 1, part 2 and part 3, DIN 4550 and considering the current state of the art of technique and ProdSG.

Due to the similar construction, the reference models "HÅG H05" was tested standing in for the complete office work chair models "5100", "5200", "5300", "5400", "5500" and "5600".

In summary, the test results **have satisfied** the requirements of the above nominated test standards.

Notes:

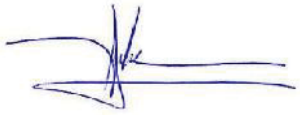
1. Please refer to the following pages for technical characteristics and results as well as detailed test conditions and requirements.
2. The office work chairs comply with type A of EN 1335, part 1. Thus the requirements for ergonomic design of the EU-Display Workstation Degree as laid out in DIN EN ISO 9241, part 5, ed.08.1999 are met.
3. The accessibility and selection of materials did not result in suspicion regarding a PAH-risk (see document - PAH requirement for GS AfPS GS 2014:01 PAK)

Intertek Consumer Goods GmbH
Hardlines Testing Laboratory

Reviewed by:

Adem Durmaz
Director – Hardlines

Revised by:



Anh Vu Nguyen
Senior Engineer – Hardlines

Product identification:

Test sample:	Office work chair
Model name:	"HAG H05"
Item number:	"5100", "5200", "5300", "5400", "5500" and "5600"
Manufacturer:	Scandinavian Business Seating AS 7366 Røros, Norway
Number of test samples:	1 piece of "5200"
Distributor:	Scandinavian Business Seating AS
Distributor's item number	./.
Distributor's PO number:	./.
Delivered on:	28.11.2014
Delivered by:	Scandinavian Business Seating AS

Product documents:

- Consideration of test report 21180898_001 of TÜV Rheinland
- Consideration of GS-Certificate S 60076263 of TÜV Rheinland
- PAH test report FUHLM2015-05448R of Intertek
- PAH evaluation sheet FUHLFP2014-15823R-PAH
- User manual and product information

Scope of the investigations:

General test and safety requirements according to

- EN 1335-1:2000+AC:02 – Office furniture – Office work chair – Part 1: Dimensions; Determination of dimensions
- EN 1335-2:2009 – Office furniture – Office work chair – Part 2: Safety requirements
- EN 1335-3:2009 – Office furniture – Office work chair – Part 3: Test methods
- DIN 4550:2004 Office furniture – Self-supporting energized devices for the height adjustment of office work chairs – Safety requirements, testing
- PAH requirement for GS AfPS GS 2014:01 PAK

Key to findings

P =	passed
F =	failed
n.a=	not applicable

Applicability of measurements:

The test results refer only to the objects to be tested. The digital images in this report are intended as supplementary information and are not an integral part of this test report.

Measurement uncertainty:

Unless otherwise indicated, all measured dimensions are accurate in accordance with DIN 7168-g for old structures and in accordance with. DIN ISO 2768 part 1 "c" for new structures. For all other physical measurement values, the uncertainty range is < 5 %. Testing was done in standard climate conditions
of 23°C / 50% relative humidity.

Test equipment list

The test equipment list contains a list of the measuring tools used and measuring equipment, gauges, templates and load weights that were used in accordance with the scope of the investigations.

Testing machines and devices as well as any connections that are necessary for the performance of tests are not an integral part of the test equipment list.

The following test equipment were available for testing in accordance with the scope of the investigations:

Clause	Test equipment	Equipment no.
General tests	Ruler	PM_HL_18.321
General tests	Band ruler 3000 mm	PM_HL_18.367
General tests	Calliüer	PM_HL_17.044
Strength and durability tests	Load cell 5 kN	PM_HL_18.358
Strength and durability tests	Load cell 5kN	PM_HL_18.359
Strength and durability tests	Load cell 5kN	PM_HL_18.360
Strength and durability tests	Load cell 5 kN	PM_HL_18.361
Strength and durability tests	Load cell 2 kN	PM_HL_18.362
Strength and durability tests	Load cell 5,5 kN	PM_HL_18.363
Strength and durability tests	Seat dummy	PM_HL_18.199
Stability	Pull-Push-Gauge	PM_HL_17.026
Stability	Stability Table	PM_HL_18.107
Stability	Load disc 10 Kg	PM_HL_18.231
Stability	Load disc 10 Kg	PM_HL_18.232
Stability	Load disc 10 Kg	PM_HL_18.233
Stability	Load disc 10 Kg	PM_HL_18.234
Stability	Load disc 10 Kg	PM_HL_18.235
Stability	Load disc (wood)	PM_HL_18.216
Stability	Load disc (wood)	PM_HL_18.217
Stability	Load disc (wood)	PM_HL_18.218
Stability	Load disc (wood)	PM_HL_18.219
Stability	Load disc (wood)	PM_HL_18.220
Stability	Load disc (wood)	PM_HL_18.221
Stability	Load disc (wood)	PM_HL_18.222
Stability	Load disc (wood)	PM_HL_18.223
Stability	Load disc (wood)	PM_HL_18.224
Stability	Load disc (wood)	PM_HL_18.225
Stability	Load disc (wood)	PM_HL_18.226
Loading point template - A-B	Measurement template	PM_HL_18.109
Strength and durability tests	Durability test stand	PM_HL_18.153
Strength and durability tests for castor	Linear axis test stand	PM_HL_18.066

General Testing

Technical characteristics

General dimensions (measurements in mm)

Model	"5100"	"5200"	"5300"	"5400"	"5500"	"5600"
Width	625	625	625	625	625	625
Height	815-941	820-946	890-1016	885-1011	970-1096	965-1091
Depth	550	550	550	550	550	550
Weight	12.5 kg	13.0 kg	16.0 kg	16.5 kg	18.0 kg	19.0 kg

Brief description of the sample

Office work chair, model range "HAG 05" with armrests, aluminium base, optional with "Swingback® armrests", optional with neck rest, optional hard castors (type "H"). Three different backrest heights, two different kinds of backrest upholstery.

- Seat height adjustable by means of gas spring from S.C. Stabilus Romania S.R.L.
- denomination of the gas spring: STAB-O-MAT D, DIN 4550-4
- synchron seat mechanism made of steel with tilt function
- seat depth, backrest height and forwards and backwards tilt resistance adjustable by one rotary handle
- forwards and backwards tilt resistance separately adjustable by hand levers
- seat inclination lockable by hand lever in three positions
- separately height adjustment of 30 mm (3 steps) by the rear side of the backrest
- seat plate made of plastic (PP)
- with armrests adjustable in height and width
- optional hinged "Swingback® armrests", rotateable, adjustable in height and width
- arm rest supports made of aluminium die cast
- backrest shell made of plastic (PP)
- model "5100": low backrest, partly upholstered backrest
- model "5200": low backrest, complete upholstered backrest
- model "5300": middle high backrest, partly upholstered
- model "5400": middle high backrest, complete upholstered
- model "5500": high backrest, partly upholstered
- model "5600": high backrest, complete upholstered
- optional with height adjustable neck rest with adjustable tension
- aluminium base "126167" from "NYSTRÖMS" made of aluminium die cast AL STENAL 460 type "H": 125104, type "W": 125108
- marking of castors: none
- castor manufacturer: JENP YOU

Product pictures: "HAG H05" model "5200"

Pic.1: Front view

Pic.2: Side view

Pic.3: Back view

Pic.4: Bottom view

Intertek Consumer Goods GmbH
Würzburger Straße 152
90766 Fürth, Germany

Tel.: +49 911 74075 0
Fax: +49 911 74075 30
cg.germany@intertek.com

Sitz Fürth
Amtsgericht Fürth, HRB 5756
Ust-IdNr. DE169317871

Geschäftsführer
Kay Grönhardt
Jan-Jörg Müller-Seiler

Product pictures: "HÅG 05 - 5200"

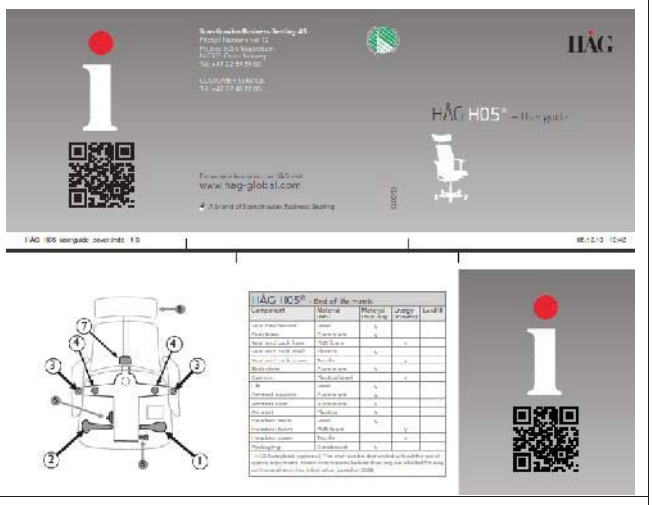
Pic.5: Base system

Pic.6: Insert for armrest and user guide

Pic.7: Castor

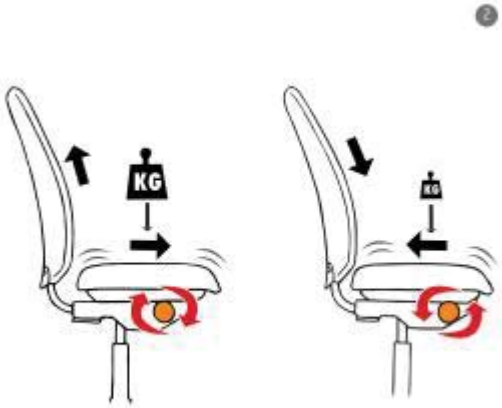
Pic.8: Product marking

Pic.9: Gas spring warning



Pic.10: User manual

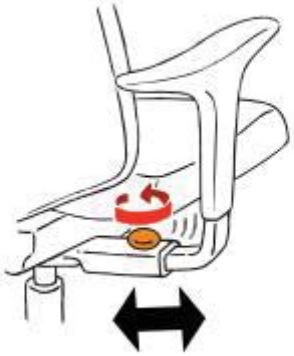
Pic.11: User manual



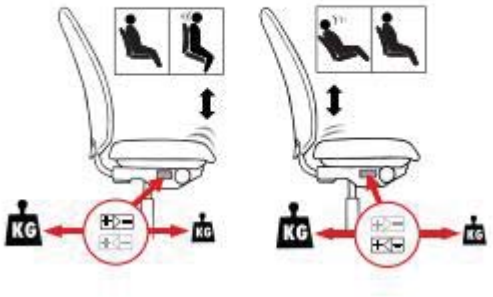
Pic.12: User manual

Pic.13: User manual

Pic.14: User manual



Pic.15: User manual



Pic.16: User manual

Pic.17: User manual

Pic.18: User manual

Pic.19: User manual

Pic.20: User manual

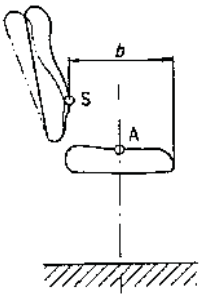
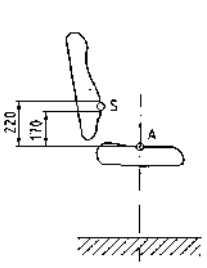
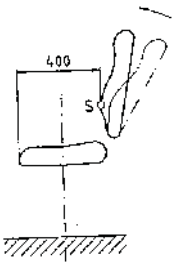
Pic.21: User manual

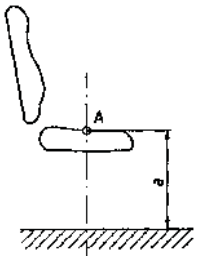
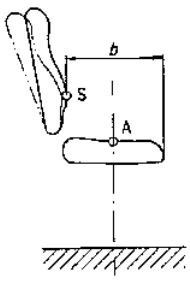
Halten Sie Ihren Stuhl möglichst fern von Schmutz und Staub. Eine gelegentliche Reinigung mit einem warmen, feuchten Lappen oder Schwamm empfehlt sich ebenfalls (Schwamm oder Lappen in lauwarmem, sauberem Wasser auswringen). Entfernen Sie keine Plastikabdeckungen und versuchen Sie nicht, die Sitzmechanik zu öffnen. Falls technische Hilfe benötigt wird, die Gasfeder ausgetauscht bzw. Repariert werden muss, dann wenden Sie sich bitte an Ihren HÅG-Fachhändler oder direkt an den HÅG Technical Service. Überprüfen Sie, ob Sie für die Oberflächenbeschaffenheit des Fußbodens die richtigen Rollen gewählt haben (harte Rollen für weiche Böden, Bsp.Teppich; weiche Rollen für harten Bodenbelag, Bsp. Stein, Holz,o.ä). Der Stuhl ist mit Rollen geprüft worden, die unbeabsichtigtes rollen des unbelasteten Stuhls vermeiden. Alle fünf Rollen müssen vom gleichen Typs sein.

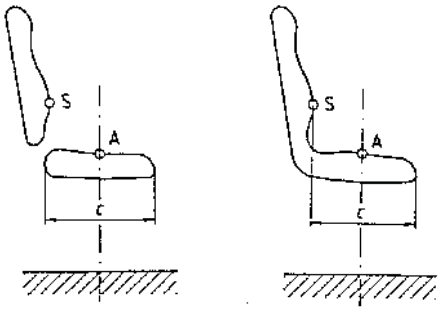
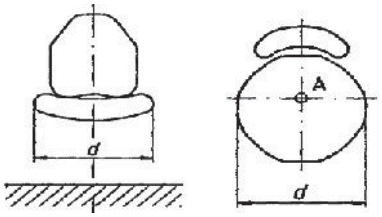
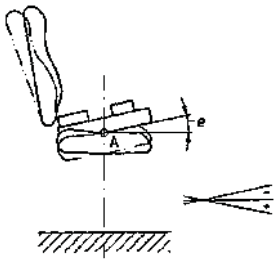
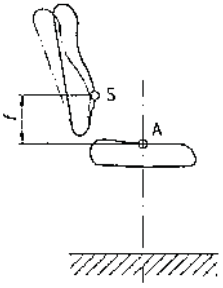
Houd uw stoel vrij van stof en vuil. Maak de beklede onderdelen schoon met een vochtige of droge doek. Neem, in het geval dat u technische assistentie nodig heeft voor het zittingmechanisme of de gaslift, contact op met uw HÅG dealer of HÅG Customer Service. Wees er zeker van dat u de juiste wielen bij de juiste ondergrond kiest. Harde wielen voor een beklede vloer, zachte wielen voor harde vloeren. De stoel is getest met de juiste wielen zodanig dat de onbemande stoel niet uit zichzelf weg zal rollen. De vijf wielen moeten van hetzelfde type zijn.

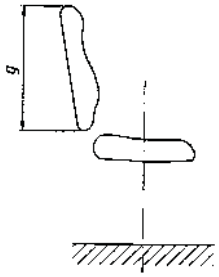
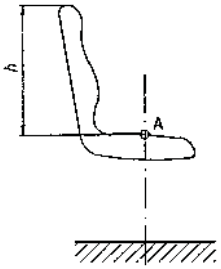
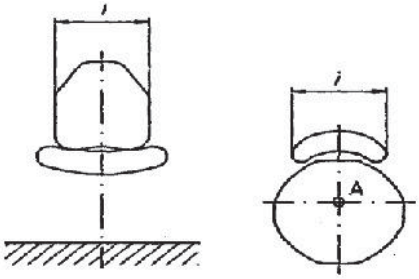
Pic.22: User manual

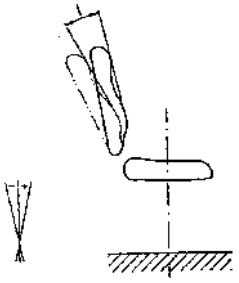
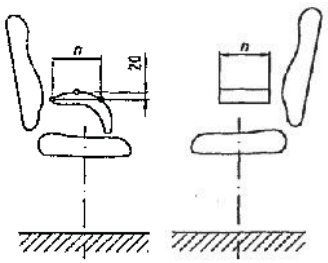
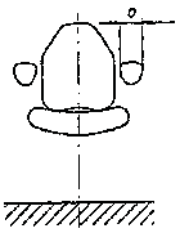
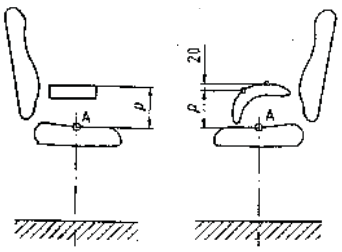
Technical testing

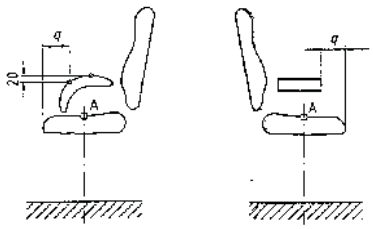
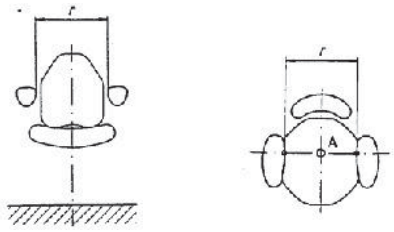
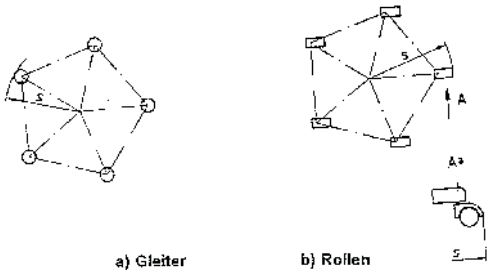
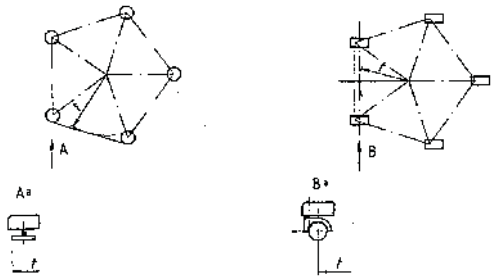
Test characteristics/requirements	Test parameters/results	Findings
Dimensions in accordance with EN 1335-1:2000 The chair shall provide support to the thighs and the lumbar region which sufficient depth and height to provide all users with a sitting position suited to their activity and their height. The dimension of the chair shall comply with one of the types of annex A. An exception is made in the case of the stability dimension *t*, provided that the chair passes the rearwards stability test according to 5.4.2 and 5.4.3 of EN 1335-3:1999. **Determination of reference points** The chair shall be positioned on a flat, rigid and horizontal test surface. **Point "A"** The dummy shall be placed on the seat surface symmetrically to the median plane in such a way that the centre of gravity of the main mass coincides with the axis of rotation. The seat shall be set as close as possible to the horizontal and the back rest shall be set as close as possible to the vertical. The movable mass shall be positioned so that the lower edge of the groove coincides with the vertical line tangential to the front edge of the seat. Before measuring, the seat shall be loaded and unloaded five times for a short period. **Back supporting point "S"** In the case of chairs with a back rest rotatable around a horizontal axes the upper and lower edges of the back rest shall be positioned vertically one above the other midway in the median plane before measurements are made. If this is not possible the closest possible position to it shall be chosen.	  	

Test characteristics/requirements	Test parameters/results	Findings
Determination of dimensions The chair shall be positioned on a flat, rigid and horizontal test surface. The seat shall be set as close as possible to the horizontal and the back rest shall be set as close as possible to the vertical. Linear dimensions shall have an accuracy of ±2 mm and all angles an accuracy of ±1°. Unless otherwise specified, all dimensions shall be measured loading at the measurement point. Where point "A" is used as reference point the seat shall be loaded by the dummy in accordance with 5.1. All adjustable dimensions and angles shall be measured both in the smallest an largest position. **Seat height [a]** The seat height [a] is the vertical distance between the floor and the point "A" NOTE: The height is determined by measurement, either at the front edge of the seat in combination with the slope of the dummy or directly at point "A". **Seat depth [b]** The seat depth [b] is the horizontal distance from the front edge of the seat to the vertical projection of the back supporting point "S", measured in the median plane. Before determining the seat depth of chairs with height adjustable back rests, the back supporting point "S" shall be set at a height of 220 mm above point "A". If the seat depth and back rest are adjusted simultaneously, i.e. when the seat depth is increased, the back rest height is automatically increased, the minimum seat depth shall be measured with back rest in its lowest position, and the maximum seat depth with the back rest in its highest position.	 	

Test characteristics/requirements	Test parameters/results	Findings
Depth [c] of seat surface The depth [c] of seat surface is the maximum horizontal distance between vertical lines through the front and rear edges of the seat surface. If the shape of the seat makes it impossible to define a rear edge, the maximum horizontal distance shall be measured from the rear of the seat surface below the back supporting point "S" (see 3.6) to the front edge of the seat surface. The measurement shall be carried out with the backrest set to the forward tilt. **Seat width [d]** The seat width [d] is the horizontal distance between vertical lines through the side edges of the seat surfaces measured in the transverse plane. **Inclination [e] of seat surface** The inclination [e] of the seat surface is the angle in the median plane between the lower edge of the dummy and a horizontal line. Rearwards slope is designated "-" otherwise "+". **Height [f] of the back supporting point "S" above the seat surface** The height [f] of the back supporting point "S" above the seat surface is the vertical distance between the point "S" and point "A".	   	

Test characteristics/requirements	Test parameters/results	Findings
Height [g] of the back pad The height [g] of the back pad is the vertical distance between the upper and lower edges of the back pad, measured in the median plane. **Height [h] of the upper edge of the back rest above the seat surface** The height [h] of the upper edge of the back rest above the seat surface is the vertical distance between the upper edge of the hack rest and the point "A" measured in the median plane. **Back rest width [i]** The back rest width [i] is the maximum horizontal distance between its side edges. **Horizontal radius [k] of back rest** The horizontal radius [k] of the back rest is the radius measured at the height of the back supporting point "S".	   	

Test characteristics/requirements	Test parameters/results	Findings
Back rest inclination adjustment range [l] ("tilt") The back rest inclination is the angle between the transverse plane and the back rest determined at point "S". Rearwards slope is designated "-" otherwise "+". The back rest inclination adjustment range [l] is the angle between the foremost and the rearmost position of the inclined back rest. **Length [n] of the useful area of the arm rest** The length [n] of the useful area of the arm rest is the horizontal distance between vertical lines through its front and rear edges. In the case of an arm rest which is not horizontal or which is rounded at the ends or is of non-rigid material, the dimension [n] shall be measured in a plane 20 mm below the highest point of the useful area of the arm rest. **Width [o] of the useful area of the arm rest** The width [o] of the useful area of the arm rest is the horizontal distance between vertical lines through the inner and outer edges of the arm rest. If the shape of the arm rest does not allow for an exact measurement of this width, it shall be measured 20 mm below the top edge. **Height [p] of the useful area of the arm rest above the seat** The height [p] of the useful area of the arm rest above the seat is for horizontal arm rests the vertical distance between the upper surface of the arm rest and point "A". In the case of an arm rest which is not horizontal or which is rounded at the ends or is of non-rigid material, the dimension [p] is the vertical distance between the horizontal plane 20 mm below the highest point of the arm rest and point "A".	   	

Test characteristics/requirements	Test parameters/results	Findings
Distance [q] from the front of the useful area of the arm rests to the front edge of the seat The distance [q] from the front of the useful area of the arm rests to the front edge of the seat surface is the horizontal distance between the front edge of the arm rests and a line extended vertically above the front edge of the seat surface in the median plane. **Clear width [r] between the useful area of the arm rests** The clear width [r] between the useful area of the arm rests is the horizontal distance between vertical lines through the inner edges of the arm rests, measured in the transverse plane. **Maximum offset [s] of the underframe** The maximum offset [s] of the underframe is the maximum between the outermost point of the underframe including castors or glides and the axis of rotation. **Stability dimension [t]** The stability dimension [t] is the smallest distance between the overbalancing axes on the floor and the axes of rotation of the chair. Where castors are used, the most unfavourable castor position shall be used for the measurement.	   a) Gleiter b) Rollen 	

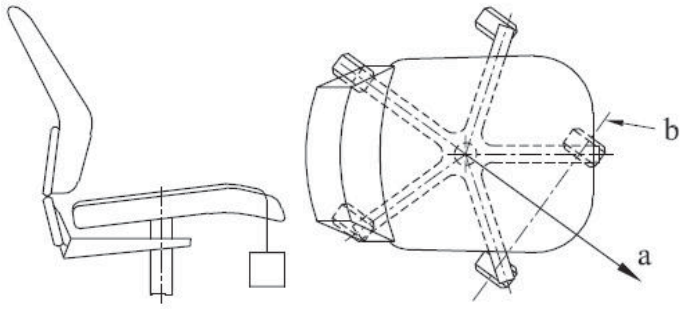
Dimension table for Office work chair "HAG 05" – 5200 – TYPE "A"

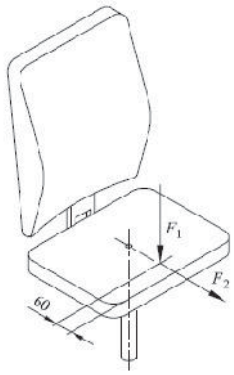
Dimensions	Symbol	Adjustability	Type A				Actual value	Results
Office work chair:			allowed (-)	Min. [a]	Max. [a]	allowed (+)		
Seat height [b)]	[a]	adjustable	yes	400	510	yes	**389 - 515 mm**	**P**
		adjustable range	no	120	+	yes	**126 mm**	**P**
Seat depth	[b]	fixed		./.	./.			
		adjustable	yes	400	420	yes	**385 – 411 mm**	**P [2)]**
		adjustable range	no	50	+	yes	**116 mm**	**P**
Depth of seat surface	[c]		no	380	+	yes	**435 mm**	**P**
Seat width	[d]		no	400	+	yes	**450 mm**	**P**
Inclination of seat surface	[e]	fixed		./.	./.			
		adjustable	yes	-2	-7	yes	**+8.5° to -17.5°**	**P**
		adjustable range	no	6°	+	no	**26.0°**	**P**
Height of the back Supporting point "S" above the seat surface	[f]	fixed		./.	./.			
		adjustable	yes	170	220	yes	**135 – 220 mm**	**P**
		adjustable range	no	50	+	yes	**105 mm**	**P**
Height of the back pad - adjustable in height - non-adjustable in height	[g]		 no no	 220 260	 + +	 yes yes	 **„5100": 600 mm** **„5600": 555 mm**	**P**
Height of the upper edge of the back rest above the seat surface	[h]		no	360	+	yes	**„5100": 382 – 451 mm** **„5600": 491 – 552 mm**	**P**
Back rest width	[i]		no	360	+	yes	**360 mm**	**P**
Horizontal radius of the back rest	[k]		no	400	+	yes	**> 400**	**P**
Back rest inclination	[l]	adjustable range	no	15°	+	yes	**22.9°**	**P**
Length of arm rest	[n]		no	200	+	yes	**285 mm**	**P**
Width of arm rest[(C)]	[o]		no	40	+	yes	**60 mm**	**P**
Height of arm rest above the Seat	[p]	fixed	no	200	250	no		
		adjustable	yes	200	250	yes	**non pivoted arms: 197 – 300 mm pivoted arms: 177 - 284**	**P**
Distance from the front of the arm rest to the front edge of the seat surface[d)]	[q]		no	100	+	yes	**> 130 mm**	**P**
Clear width between the arm rests[e)]	[r]		no	460	510	no	**460-570 mm**	**P**
Maximum offset of the underframe (anti-stumbling –dimension)	[s]		yes	+	365 f]	no	**373 mm**	**P**
Stability dimension[h)]	[t]		no	195	+	yes	**242 mm**	**P**

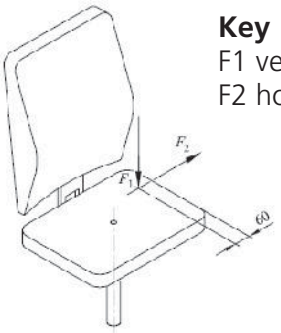
a) For adjustable functions the Min. and Max. values must be obtained.
b) The minimum range of adjustment is suitable for working surface heights between at least 680 mm and 780 mm. For some part of the user group a foot rest is required.
c) The requirement applies over the minimum value n (See clause 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 back rest in its foremost position (see clause 6.16).
f) If swivel castors are fitted the requirement is 415 mm.
g) X is the maximum horizontal distance between parts of the upper part of the chair and the axis of rotation (see clause 6)
+ No determination

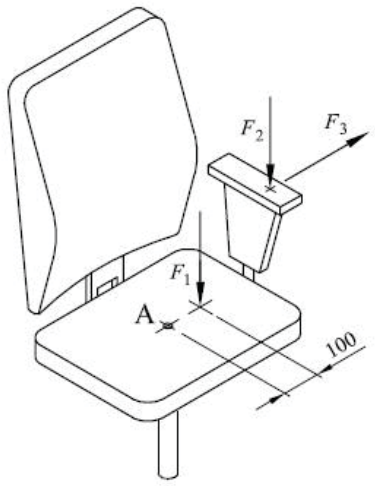
[2)] by tilt mechanism movement, + 90 mm separate way of sliding seat

Test characteristics/requirements	Test parameters/results	Findings
Safety requirements in accordance to EN 1335-2		
General design requirements		
Corners and edges, trapping, pinching and shearing	requirements fulfilled	
The chair shall be so designed as to minimise the risk of injury to the user.	no risk of injury	P
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.	fulfilled	P
These requirements are met when:		
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.		
Adjusting devices	requirements fulfilled	
Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	fulfilled	P
It shall be possible to operate the adjusting devices from sitting position in the chair.	fulfilled	P
Connections	requirements fulfilled	
It shall not be possible for any load bearing part of the chair to come loose unintentionally.	fulfilled	P

Test characteristics/requirements	Test parameters/results	Findings
Avoidance of soiling	requirements fulfilled	
All parts which are lubricated to assist sliding (greasing, lubricating, etc.) shall be designed to protect users from lubricant stains when in normal use.	fulfilled	
Stability during use	requirements fulfilled	
The chair shall not overbalance under the following conditions:		
a) by pressing down on the front edge of the seat surface in the most adverse position;	no overbalancing	P
b) by leaning out over the arm rests;	no overbalancing	P
c) by leaning against the back rest;	no overbalancing	P
d) by sitting on the front edge.	no overbalancing	P
Requirement a) is fulfilled if the chair does not overbalance when tested according to front edge overturning.		
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 M1 to hang freely (see Figure 7).		
		
a position of the strap on the seat surface b the tilting axis, castors in the most adverse position		
Figure 7 — Front edge overturning		

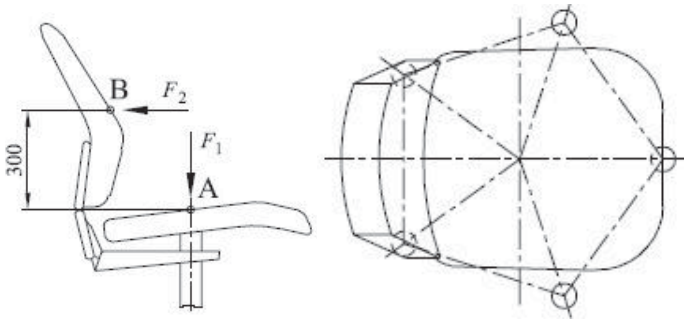
Test characteristics/requirements	Test parameters/results	Findings
Requirements b) and d) are fulfilled if the chair does not overbalance when tested according to forwards overturning and forwards overturning for chairs with footrest. **Forwards overturning** Position the chair with two adjacent supporting points on the front against the stops. Apply by means of the stability loading device a vertical force F1 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 F2 from the point on the seat surface where the vertical force is applied (see Figure 8).  **Key** F1 vertical force F2 horizontal force **Figure 8 — Forward overturning** **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 F1 shall be applied through the centre of the ring cross section.		

Test characteristics/requirements	Test parameters/results	Findings
Sideways overturning for chairs with and without armrests of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard. **Sideways overturning for chairs without armrests** Position the chair with two adjacent supporting points on one side against the stops. Apply by means of the stability loading device a vertical force F1 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 F2 outwards from the point on the seat surface where the vertical force is applied, (see Figure 9). **Key** F1 vertical force F2 horizontal force  **Figure 9 — Sideways overturning for chairs without armrests**		

Test characteristics/requirements	Test parameters/results	Findings
Sideways overturning for chairs with armrests Position the chair with two adjacent supporting points on one side against the stops. Apply by means of the stability loading device a vertical force F1 acting at a point 100 mm from the fore and aft centre line of the seat at the side where the supporting points 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 F2 acting at points on the arm rest which is on the same side as the restrained supporting points 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 arm rest, and at the most adverse position along its length. Apply a horizontal sideways force F3 outwards from the same point for at least 5 s (see Figure 10). Dimensions in millimetres  **Key** A seat loading point F_1 vertical force F_2 vertical force F_3 horizontal force **Figure 10 — Sideways overturning for chairs with armrests**		

Test characteristics/requirements	Test parameters/results	Findings
The unloaded chair shall not roll unintentionally. This requirement is met when: a) the castors are of identical construction; b) the rolling resistance is ≥ 12 N when tested according to Rolling resistance of the unloaded chair. **Rolling resistance of the unloaded chair** The chair shall be placed on the test surface 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. Requirement c) is fulfilled if the chair does not overbalance when tested according to rearwards overturning for chairs without backrest inclination or Rearwards overturning for chairs with adjustable back rest inclination of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.1 of this standard. **Rearwards overturning for chairs without back rest inclination** Position the chair with two adjacent supporting points on the back against the stops. When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration. A vertical force F1 shall be applied at point "A" and a horizontal force F2 shall be applied at point "B", (see Figure 11). 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".	- type “W”: 14.5 N - type “H”: 22 N	P

Test characteristics/requirements	Test parameters/results	Findings



Key

A seat loading point (6.1)
B back loading point (6.2)
F_1 vertical force
F_2 horizontal force

Figure 11 — Rearward overturning for chairs without back rest inclination

Rearwards overturning for chairs with adjustable back rest inclination

Do not position the chair with the supporting points against the stops. When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration.

Load the chair with discs so that the discs are firmly settled against the back rest (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.

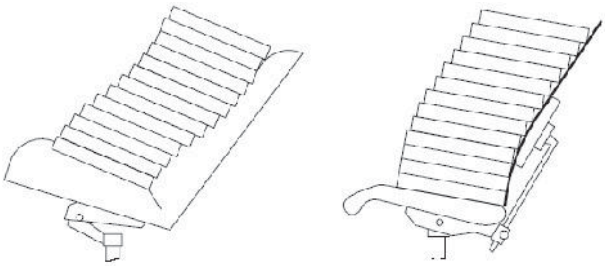
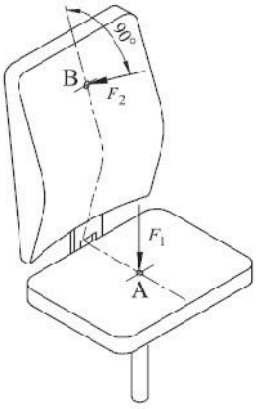
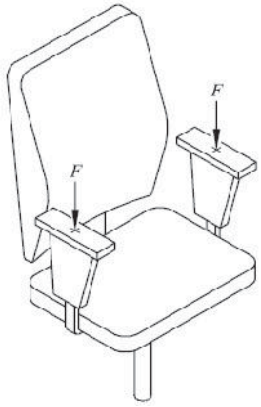
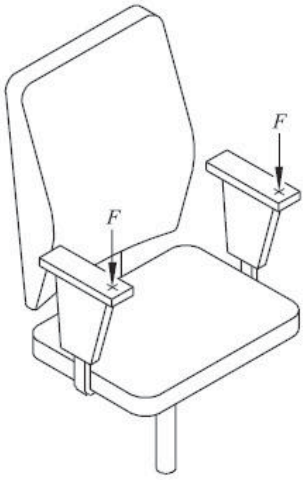


Figure 12 — Rearward overturning for chairs with adjustable back rest inclination

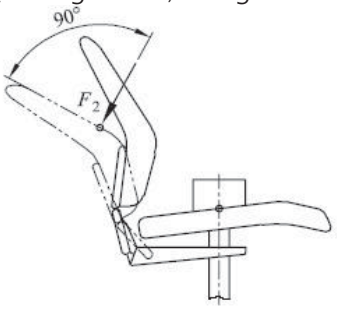
Test characteristics/requirements	Test parameters/results	Findings
Strength and durability	requirements fulfilled	
The chair shall be constructed to ensure that it does not create a risk of injury to the user of the chair under the following conditions:	no risk of injury	P
a) sitting on the seat, both centrally and off-centre;	fulfilled	P
b) moving forward, backwards, and sideways while sitting in the chair;	fulfilled	P
c) leaning over the armrests;	fulfilled	P
d) pressing down on the arm rests while getting up from the chair.	fulfilled	P
These requirements are fulfilled when after the tests specified in Seat front edge static load test, Combined seat and back static load test, Foot rest static load test, Seat and back durability and Armrest durability of EN 1335-3:2009 with the forces and numbers of cycles according to Table A.2 of this standard:		
e) there are no fractures of any member, joint or component, and	fulfilled	P
f) there is no loosening of joints intended to be rigid, and	fulfilled	P
g) no major structural element is significantly deformed and the chair fulfils its functions after removal of the test loads	fulfilled	P
h) after the test in Arm rest downward static load test – central 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.	fulfilled	P

Test characteristics/requirements	Test parameters/results	Findings
Static load tests Position the chair and its components as specified in 4.1 and Table 1 on the test surface. **Seat front edge static load test** Position the chair and its components as specified in 4.1 and Table 1 on the test surface. **Combined seat and back static load test** Prevent the chair from moving rearwards by placing stops behind two adjacent supporting points at the rear of the chair. Apply a vertical force F1 through the seat loading pad at point "A". Keep the seat loaded and apply a force F2 through the centre of the back loading pad at point "B". When fully loaded the force shall act at 90° ± 10° to the back rest 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.  **Key** A seat loading point (6.1) B back loading point (6.2) F_1 vertical force F_2 perpendicular force **Figure 13 — Combined seat and back static load test**		

Test characteristics/requirements	Test parameters/results	Findings
Arm rest downward static load test – central The arm rests shall be loaded vertically by means of the local loading pads. The loading points shall be at the mid point of the arm rest length and centred side to side (see Figure 14).  **Key** F vertical force **Figure 14 — Armrest downward static load test – central** **Arm rest downward static load test – front** The armrests shall be loaded vertically by means of the local loading pads. The loading points shall be 75 mm from the front edge and centred side to side. Apply the force to both arm rests simultaneously (see Figure 15).  **Key** F vertical force **Figure 15 — Arm rest downward static load test – front**		

Test characteristics/requirements	Test parameters/results	Findings
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).  **Key** F horizontal force **Figure 16 — Arm rest sideways static load test** **Foot rest static load test** Apply a vertical force acting 80 mm from front edge of the load bearing structure of the foot rest 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. **Durability tests** Position the chair and its components as specified in and Table 1 on the test surface except for the castor and chair base durability test.		

Test characteristics/requirements	Test parameters/results	Findings
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).  **Key** F horizontal force **Figure 16 — Arm rest sideways static load test** **Foot rest static load test** Apply a vertical force acting 80 mm from front edge of the load bearing structure of the foot rest 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. **Durability tests** Position the chair and its components as specified in and Table 1 on the test surface except for the castor and chair base durability test.		

Test characteristics/requirements	Test parameters/results	Findings
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 back rest force shall be applied at an angle of 90° ± 10° to the back rest when fully loaded (see Figure 17) using the back loading pad (5.6).  **Key** F perpendicular force **Figure 17 — Backrest force application – principle** 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.		

Test characteristics/requirements	Test parameters/results	Findings
Table 2 — Seat and back durability test **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° ± 1° to the vertical. The length of the "arm" of the test apparatus shall be 600 mm ± 10 mm. The arm rests shall be allowed to deform freely. **Swivel test** 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 M1 and in loading point C (6.3) with a mass M2 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.		

Step	Loading point (see Figure 6)
1	A
2	C-B
3	J-E
4	F-H
5	D-G

Test characteristics/requirements	Test parameters/results	Findings
Footrest durability 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. **Castor and chair base durability** 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 5.11) so that the rotating axis of the chair coincides with the rotating axis of the table. Load the seat in point A with M1. 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. Alternatively attach the chair to a device that provides a linear movement of (1 000 ± 250) mm and a test surface (see 5.11). Load the seat in point "A" with M1. 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. 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.		

Test characteristics/requirements	Test parameters/results	Findings
Information for use	requirements fulfilled	
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:	available	P
a) information regarding the intended use;	available	P
b) information regarding possible adjustments and chair type (see EN 1335-1:2000);	available	P
c) instruction for operating the adjusting mechanisms;	available	P
d) instruction for the care and maintenance of the chair;	available	P
e) information regarding all adjustments;	available	P
f) information for chairs with seat height adjustments with energy accumulators that only trained personnel may replace or repair seat height adjustment components with energy accumulators;	available	P
g) information on the choice of castors in relation to the floor surface.	available	P

Intertek Consumer Goods GmbH
Würzburger Straße 152
90766 Fürth, Germany

Tel.: +49 911 74075 0
Fax: +49 911 74075 30
cg.germany@intertek.com

Sitz Fürth
Amtsgericht Fürth, HRB 5756
Ust-IdNr. DE169317871

Geschäftsführer
Kay Grönhardt
Jan-Jörg Müller-Seiler

Test characteristics/requirements	Test parameters/results	Findings
Additional requirements for the GS-mark		
Safety class of gas spring tube DIN 4550 cl. 5		
Maximum permissible distance "u" between seat front edge and the center of the gas spring in accordance with safety class may not be exceeded.	DIN 4550 certificate available	P
General safety requirements DIN 4550: 2004 cl. 6.1		
Self-supporting gas springs must have a tripping device on the face side and have to be made of one part in the load bearing area.	DIN 4550 certificate available	P
Gas spring taper DIN 4550 cl. 6.2, 6.3		
- overlapping minimum 80 % - one-piece taper - radius minimum 1 mm at the bottom edge - taper with smooth surface	DIN 4550 certificate available	P
Durability test for self-supporting energized devices DIN 4550 cl. 7.2		
Test certificate for durability test.	DIN 4550 certificate available	P
Marking of gas spring DIN 4550 cl. 9		
- manufacturer - type designation - classification - date of production (week / year)	DIN 4550 certificate available	P
Safety advice on the chair DIN 4550 cl. 9		
A conspicuous warning advice near the gas spring in German with the following content: "Achtung! Austausch und Arbeiten im Bereich des Sitzhöhenverstellelementes nur durch eingewiesenes Personal."	warning advice available (see picture 9 on page 6)	P
We recommend the safety advice also in the language of the country in which it will be delivered to the end user.		
Self assembly EK 5 / AK 3: 01-04		
The decision of EK 5 / AK 3: 01-04 for self assembly office work chairs shall be considered.	no assembly required	n.a.

Test characteristics/requirements	Test parameters/results	Findings
Marking according to ProdSG § 6		
Durable marking of product with name and contact address of manufacturer or importer and the product designation.	available	P
Materials		
Materials and its combinations shall not be toxic, among others the following certificates are necessary:	requirements fulfilled	
- test certificate of harmful substances for wooden materials.	no wood material	n.a.
- test certificates of harmful substances for upholstery and cover materials.	available	P
- risk analysis for Polycyclic Aromatic Hydrocarbons (PAH) according to the valid ZEK requirement.	available	P
User information DIN EN 1335-2, cl 5		
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: 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 all adjustments; f) information for chairs with seat height adjustments with energy accumulators 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.	available	P
Chemical assessment (PAH)	Remark 1)	P

Remark 1): The accessibility and selection of materials did not result in suspicion regarding a PAH-risk (see document AfPS GS 2014:01 PAK of ZLS). Evidences of cover materials / Armrests / Backrest are available at Intertek / Scandinavian Business Seating AS, see also PAH evaluation sheet FUHLFP2014-15823R-PAH.

LEED for Commercial Interiors (LEED-CI)

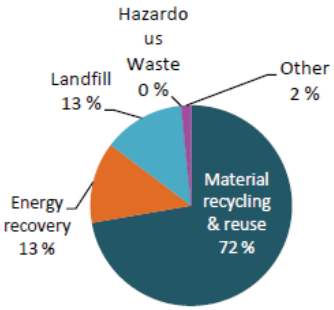
HÅG H05 gives 5 (or 6) LEED points

Contribution to green building projects.

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 5 major credit categories, where 2 of the categories are relevant for HÅG as manufacturer.

HÅG H05 contributes to green building projects as follow:

Materials and Resources (MR)



MR 2: Construction Waste Management

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

Result: HÅG H05 has defined waste management for 85% (13% for Energy recovery and 72% for Material recycling & reuse) of the product's components and materials.

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 H05 contains 37 % post consumer recycled materials.

LEED points: Gives 2 points (out of 2)

MR 5: Regional Materials

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

Result: All HÅG products are manufactured at Røros, Norway. For most building projects in Norway its possible to have 1 LEED point - bur for the rest of Europe we do not fulfill the requirements.

LEED points: Can give 1 point (out of 2) if products are manufactured within a 500 miles/800 km of building project.

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 H05 is GREENGUARD certified.

LEED points: Gives 1 point (out of 1)

MÖBELFAKTA
INTYG

PRODUKTNAMN:	**HÅG H05** **Arbetsstol** **5100, 5200, 5300, 5400, 5500, 5600**
FÖRETAG:	**Scandinavian Business Seating AB**
REG.NUMMER:	**1120130705**
ANVÄNDARMILJÖ:	**Kontorsmiljö**

GILTIGHET: **2013-07-05 - 2018-07-05 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*

tmf TRÄ- OCH MÖBELFÖRETAGEN

MÖBELFAKTA

QUALITY OFFICE

ZERTIFIKAT

Certificate

Das Qualitätsforum Büroeinrichtungen
bestätigt den erfolgreichen Abschluss der Prüfungen
gemäß den hohen Anforderungen der „Qualitätskriterien für Büroarbeitsplätze“
nach der Leitlinie L-Q 2010 und verleiht der Firma

The Quality Forum of Office Furniture and Equipment
confirms the successful result of examinations
according to the high requirements of the “Quality criteria for office working places
according to the Guideline L-Q 2010 an awards to

Scandinavian Business Seating GmbH
41468 Neuss

das Recht zur Nutzung der Marke QUALITY OFFICE für das Produkt
the right to use the QUALITY OFFICE-label for the product

„ HÅG H05“

Büro-Arbeitsstühle / Besucher- und Besprechungsstühle

Office chairs / Visitor’s chairs

Lizenz Nr. / *Licence No.* 8.319
gültig bis / *valid until* 31. März 2017

Wiesbaden, 27. März 2014

Willi Schneider

QUALITÄTSFORUM BÜRO-EINRICHTUNGEN QUALITY OFFICE

Werner Hungenberg

Qualitätsforum Büroeinrichtungen
Quality Forum of Office Furniture and Equipment

DIN
Deutsches Institut
für Normung e. V.

VBG
Ihre gesetzliche
Unfallversicherung

bso
Verband Büro-, Sitz-, und
Objektmöbel e. V.

INQA-Büro
Initiativkreis Neue Qualität
der Büroarbeit