

Scandinavian Business Seating AS

Sundveien
N-7374 Røros, Norway

Fürth, 28.11.2014

Test report no. FUHLFP2014-10164

Receipt of sample: 07.11.2014; period of investigation: 07.11.2014 – 28.11.2014

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

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Test item: "HÅG Futu Communication" Office visitor 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 16139:2013 (Level 1), EN 1728:2012+AC:2013, EN 1022:2005 and considering the current state of the art of technique under consideration of the ProdSG.

The reference model "HÅG Futu Communication" was tested standing in for the complete office work chair model range "Futu Communication".

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 accessibility and selection of materials did not result in suspicion regarding a PAH-risk (see document ZEK 01.01-08 of ZLS), see page 13¹⁾.

Intertek Consumer Goods GmbH
Hardlines Testing Laboratory

Reviewed by:



Adem Durmaz
Director – Hardlines

Revised by:



Anh Vu Nguyen
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Product identification:

Test sample:	Office visitor chair
Model name:	„HAG Futu Communication“
Item number:	1070
Manufacturer:	Scandinavian Business Seating AS 7366 Røros, Norway
Number of test samples:	1 piece
Distributor:	Scandinavian Business Seating AS
Distributor's item number:	./.
Distributor's PO number:	./.
Delivered on:	07.11.2014
Delivered by:	Scandinavian Business Seating AS

Product documents:

- Consideration of test report 21159731 of TUV Rheinland
- Consideration of GS-Certificate S 60035543-0001
- PAH Evaluation sheet FUHLFP2014-10164-PAH

Scope of the investigations:

General test and safety requirements according to

- EN 16139:2013 – Furniture: Strength, durability and safety. Requirements for non-domestic seating
- EN 1728:2012 + AC:2013 – Furniture – Seating – Test methods for the determination of strength and durability
- EN 1022:2005 – Domestic furniture – Seating – Determination of stability
- Product safety act ProdSG 11/2011
- ZEK 01.01-08 of ZLS – PAH risk

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)

Depth:	590
Height:	930
Width:	550
Net weight:	9,2 kg

Functional dimensions (measurements in mm)

Seat height	480
Seat depth	480
Seat width	470
Backrest width	420
Armrest length	225
Armrest width	38 max.
Armrest height over the seat	190
Clear width between armrests	440

Product description

Cantilever visitor chair with armrests, stackable

- Frame made of multiple bended steel tube, connections welded
- Seat shell made of plastic and upholstered with cushion and covered with fabric
- Armrests as part of the frame by 2 screws each side
- Legs equipped with 5 gliders, fixed to the steel tube by rivets

Product pictures: "Futu Communication"



Pic.1: Front view



Pic.2: Side view



Pic.3: Back view



Pic.4: Bottom view

Product pictures: "Futu Communication"



Pic.5: Armrest



Pic.6: Brand label



Pic.7: Glider



Pic.8: Armrest connectors



Pic.9: Seat connectors



Pic.10: Product marking

Technical testing

Test characteristics/requirements	Test parameters/results	Findings
<p>Safety requirements according to EN 16139:2013</p> <p>4. Safety requirements</p> <p>4.1. General</p> <p>The seating shall be so designed as to minimise the risk of injury to the user.</p> <p>All accessible parts (3.1) shall be so designed that physical injury and damage are avoided.</p> <p>This requirement is met when:</p> <ul style="list-style-type: none"> a) accessible corners are rounded or chamfered; b) the edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair are rounded or chamfered; c) the edges of handles are rounded or chamfered in the direction of the force applied; d) all other edges are free from burrs and rounded or chamfered; e) the ends of hollow components are closed or capped. <p>Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.</p> <p>It shall not be possible for any load bearing part of the seating to come loose unintentionally.</p> <p>All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.</p> <p>4.2. Shear and squeeze points</p> <p>4.2.1 Shear and squeeze points when setting up and folding</p> <p>Unless 4.2.2 or 4.2.3 are applicable, shear and squeeze points that are created only during setting up and folding, including tipping seat actions, are acceptable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain.</p>	<p>fulfilled</p> <p>fulfilled</p> <p>fulfilled</p> <p>corners rounded / chamfered</p> <p>edges rounded / chamfered</p> <p>edges rounded / chamfered</p> <p>edges rounded / chamfered</p> <p>edges rounded / chamfered</p> <p>fulfilled</p> <p>fulfilled</p> <p>fulfilled</p> <p>no shear and squeeze points existing</p>	<p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p>

Test characteristics/requirements	Test parameters/results	Findings
<p>The edges of parts moving relative to each other and creating shear and squeeze points shall be as specified in 4.1.</p> <p>4.2.2 Shear and squeeze points under influence of powered mechanism</p> <p>With the exception of tipping seats there shall be no shear and squeeze points created by parts of the seating operated by powered mechanisms, e.g. springs and gas lifts.</p> <p>4.2.3 Shear and squeeze points during use</p> <p>There shall be no shear and squeeze points created by forces applied during normal use as well as during normal movements and actions, see Table 1.</p> <p>4.3 Stability</p> <p>4.3.1 General</p> <p>The seating shall not overturn under the following conditions:</p> <p>a) by pressing down on the front edge of the seat surface in the median plane (3.8);</p> <p>b) by applying a load on the seat surface via the front corner;</p> <p>c) by leaning sideways on a with or without arm rests;</p> <p>d) by leaning against the back rest;</p> <p>e) by sitting on the front edge of the seat;</p> <p>f) by loading the foot rest.</p> <p>4.3.2 Swiveling chairs</p> <p>The seating shall fulfil the relevant requirements of EN 1022</p> <p>4.4 Rolling resistance of the unloaded chair</p> <p>This sub clause is only applicable to single seating units fitted with castors or wheels.</p> <p>The unloaded seating shall not roll unintentionally.</p>	<p>noted</p> <p>fulfilled</p> <p>fulfilled</p> <p>fulfilled</p> <p>seating did not overturn</p> <p>seating did not overturn</p> <p>seating did not overturn</p> <p>seating did not overturn</p> <p>seating did not overturn</p> <p>seating did not overturn</p> <p>requirements of EN 1022 fulfilled</p> <p>no castor</p> <p>no castor</p>	<p></p> <p>P</p> <p>P</p> <p></p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>P</p> <p>n.a.</p> <p>n.a.</p> <p>n.a.</p>

Test characteristics/requirements	Test parameters/results	Findings
<p>This requirement is met when:</p> <ul style="list-style-type: none"> - the rolling resistance is ≥ 12 N when tested in accordance with EN 1335-3:2009, 7.4; and - all castors are of the same type. <p>4.5 Safety of the construction</p> <p>The following tests described in Clause 6, Table 1 are considered to be relevant to safety: Test No.: 1, 2, 4, 6, 7, 8, 9, 10, 12, 13, 14.</p> <p>Seating is considered to satisfy the safety requirements if, on completion of the relevant tests, the chair satisfies all requirements of Clause 5.</p> <p>5 Safety, strength and durability requirements</p> <p>The chair shall be constructed to ensure that it does not create a risk of injury to the user of the chair under the following conditions:</p> <ul style="list-style-type: none"> - sitting on the seat, both centrally and off-centre; - moving forward, backwards, and sideways while sitting in the chair; - leaning over the arm rests; - pressing down on the arm rests while getting up from the chair. <p>These safety, strength and durability requirements are fulfilled when during and after testing in accordance with Table 1 :</p> <ul style="list-style-type: none"> a) there are no fractures of any member, joint or component; b) there are no loosening of joints intended to be rigid; c) no major structural element is significantly deformed; d) the chair fulfils its functions after removal of the test loads. <p>The stability requirements are fulfilled when after testing in accordance with Table 1 the seating does not overturn.</p>	<p>no castor</p> <p>noted</p> <p>fulfilled</p> <p>no risk created under the below conditions</p> <p>fulfilled</p> <p>no fracture</p> <p>no loosening of joints</p> <p>no significant deformation</p> <p>functions given after the test loads</p> <p>stability given after testing</p>	<p>n.a.</p> <p></p> <p>P</p> <p>P</p> <p></p> <p>P</p> <p></p> <p></p> <p></p>

Test characteristics/requirements	Test parameters/results	Findings
<p>6 Test methods</p> <p>Seating shall be tested on the same sample for safety, strength and durability according to Table 1 and following the order listed in Table 1.</p> <p>The guidance for selecting level L 1 or L2 with due respect for the end use of the product is given in Annex B.</p> <p>7 Information for use</p> <p>Information for use shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:</p> <ul style="list-style-type: none"> a) information regarding the intended use (see Annex B); b) if the chair is fitted with adjusting mechanisms: instruction for operating the adjusting mechanisms; c) assembly instructions, where applicable; d) instruction for the care and maintenance of the chair; e) if the seating is fitted with castors: information on the choice of castors in relation to the floor surface; f) if the seating is fitted with adjustment mechanisms comprising an energy accumulator, an additional note is required pointing out that only instructed personnel may replace and maintain adjustment mechanisms containing energy accumulators. 	<p>noted</p> <p>noted</p> <p>fulfilled</p> <p>available</p> <p>available</p> <p>available</p> <p>available</p> <p>available</p> <p>available</p>	<p></p> <p></p> <p>P</p>

Table 1 - Strength and durability tests

Test and sequence	Reference	Loading ^a	Level	Result
			L1	Level1
1.Seat and back static load test	EN 1728:2012, 6.4	Seat: Force, N Back: Force, N; 10 times	1600 560(min force 410)	P
2.Seat front edge static load test	EN 1728:2012, 6.5	Force, N 10 times	1300	P
3.Vertical static load on back ^b	EN 1728:2012, 6.6	Force, N Seat load, N, 10 times	600 1300	P
4.Foot rest and leg rest static load test	EN 1728:2012, 6.8, 6.9	Force, N 10 times	1300	NA
5.Arm sideways static load test	EN 1728:2012, 6.10	Force, N 10 times	400	P
6.Arm downwards static load test	EN 1728:2012, 6.11	Force, N 5 times	750	P
7.Vertical upwards static load on arm rests	EN 1728:2012, 6.13.1, 6.13.2	Seat load, N Lift 10 times, during ≥ 10 s	250 or lift stack with max. 8 chairs of max 25kg	P
8.Seat and back durability test	EN 1728:2012, 6.17	Cycles Seat: 1000N; Back ^c : 300N	100 000	P
9.Seat front edge durability test	EN 1728:2012, 6.18	Cycles Force: 800N	50 000	P
10. Arm durability test	EN 1728:2012, 6.20	Cycles Force: 400N	30 000	P
11. Foot rest durability test	EN 1728:2012, 6.21	Cycles Force: 1000N	50 000	NA
12. Leg forward static load test	EN 1728:2012, 6.15	Force, N Seat load, N; 10 times	500 1000	P
13. Leg sideways static load test	EN 1728:2012, 6.16	Force, N Seat load, N; 10 times	400 1000	P
14.Seat impact test	EN 1728:2012, 6.24	Drop height, mm 10 times	240	P
15.Back impact test	EN 1728:2012, 6.25	Height of fall, mm/ ^o 10 times	210/38	P
16. Arm impact test	EN 1728:2012, 6.26	Height of fall, mm/ ^o 10 times	210/38	P
17. Drop test (multiple seating)	EN 1728:2012, 6.27.1	Drop height, mm 2x5 times	N/A	NA
18.Auxiliary writing surface static load test	EN 1728:2012, 6.14	Force, N 10 times	300	NA
19. Auxiliary writing surface durability test	EN 1728:2012, 6.22	Cycles Force: 150N	10 000	NA

^a Seat load on parts not undergoing test: 750N
^b The test is only applicable for chairs without head/neck rest and for chairs with a height of the backrest <1000mm above ground
^c No minimum force defined

Test characteristics/requirements	Test parameters/results	Findings
<p>Additional requirements for the GS-mark</p> <p>Safety class of gas spring tube DIN 4550 cl. 5</p> <p>Maximum permissible distance "u" between seat front edge and the center of the gas spring in accordance with safety class may not be exceeded.</p> <p>General safety requirements DIN 4550: 2004 cl. 6.1</p> <p>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.</p> <p>Gas spring taper DIN 4550 cl. 6.2, 6.3</p> <ul style="list-style-type: none"> - overlapping minimum 80 % - one-piece taper - radius minimum 1 mm at the bottom edge - taper with smooth surface <p>Durability test for self-supporting energized devices DIN 4550 cl. 7.2</p> <p>Test certificate for durability test.</p> <p>Marking of gas spring DIN 4550 cl. 9</p> <ul style="list-style-type: none"> - manufacturer - type designation - classification - date of production (week / year) <p>Safety advice on the chair DIN 4550 cl. 9</p> <p>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."</p> <p>We recommend the safety advice also in the language of the country in which it will be delivered to the end user.</p> <p>Self assembly EK 5 / AK 3: 01-04</p> <p>The decision of EK 5 / AK 3: 01-04 for self assembly office work chairs shall be considered.</p>	<p>no gas spring</p> <p>no gas spring</p> <p>no gas spring</p> <p>no gas spring</p> <p>no gas spring</p> <p>no gas spring</p> <p>no assembly required</p>	<p>n.a.</p> <p>n.a.</p> <p>n.a.</p> <p>n.a.</p> <p>n.a.</p> <p>n.a.</p> <p>n.a.</p>

Test characteristics/requirements	Test parameters/results	Findings
<p>Marking according to ProdSG section 2 § 6</p> <p>Durable marking of product with name and contact address of manufacturer or importer and the product designation.</p> <p>Materials</p> <p>Materials and its combinations shall not be toxic, among others the following certificates are necessary:</p> <ul style="list-style-type: none"> - test certificate of harmful substances for wooden materials. - test certificates of harmful substances for upholstery and cover materials. - risk analysis for Polycyclic Aromatic Hydrocarbons (PAH) according to the valid ZEK requirement. <p>User information DIN EN 1335-2, cl 5</p> <p>Each chair shall be accompanied by information for use in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:</p> <ul style="list-style-type: none"> a) information regarding the intended use; b) information regarding possible adjustments and chair type (see EN 1335-1:2000); c) instruction for operating the adjusting mechanisms; d) instruction for the care and maintenance of the chair; e) information regarding 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. <p>Chemical assessment (PAH)</p>	<p>available</p> <p>available</p> <p>not applicable</p> <p>Remark 1)</p>	<p>P</p> <p>P</p> <p>n.a.</p> <p>P</p>
<p>Remark 1): The accessibility and selection of materials did not result in suspicion regarding a PAH-risk (see document ZEK 01.01-08 of ZLS). Evidences of cover materials / Armrests / Backrest are available at Intertek / Scandinavian Business Seating AS.</p>		