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Testing of Nest chair

Summary

Nest chair meet the requirements for strength and security according to EN 15373:2007, level 2.

1 Introduction

On behalf of Johanson Design AB, a Nest chair has been tested at SP in accordance with EN 15373:2007 Furniture - Strength, durability and safety - Requirements for non-domestic seating, level 2.

2 Test specimen



Figure 1 Nest chair

Seat / back: Moulded plywood
Legs: Solid wood, fittings of flat iron, steel tube Ø6 mm
Upholstery: Flexible foam

The test specimen was selected by the customer and arrived at SP 2011-10-12.

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3 Test methods and test procedure

The test was carried out according to:

- EN 15373:2007 Furniture – Strength, durability and safety – Requirements for non-domestic seating, level 2
- EN 1022 Domestic furniture – Seating – Determination of stability

The test was carried out in a climate of 23±2°C and 50 ±5% relative humidity.

The test methods are explained in table 1 – 3.

The test was carried out 2011-11-11 – 2011-12-05.

4 Results

The result is reported in table 1- 3.

Table 1

1.	General requirements	EN 15373	Results
1.1	Components or parts accessible during normal use shall have no burrs, sharp edges or sharp points.	5.1	√
1.2	There shall be no open-ended tubes.	5.1	-
1.3	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	5.1	-
1.4	Load bearing part of the seating shall not be possible to come loose unintentionally.	5.1	√
1.5	All parts that are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.	5.1	-
1.6	Shear and squeeze points exist if the distance between two accessible parts moving relative to each other can be less than 18 mm or more than 7 mm in any position during movement.	5.2.1 3.3	-
1.7	Shear and squeeze during setting up and folding. The requirement in 1.6 is not applicable for inevitable movement created only when setting up and folding the furniture.	5.2.1	-
1.8	There shall be no shear and squeeze points created by parts of the seating operated by powered mechanisms, e.g. springs and gas lifts	5.2.2	-
1.9	There shall be no shear and squeeze points if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest. The requirement also applies during test, Strength, durability (Table 3)	5.2.3	-

Table 2

2.	Stability	EN 1022 / EN 1335	Results
2.	The seating shall not overturn. The stability requirements shall be fulfilled before and after the tests specified in table 3 – Strength, durability.		√

Table 3

3.	Strength, durability	EN 1728	Cycles	Loading	Results
3.1	Seat and back static load test.	6.2.1	10	Seat: 1600 N Back: 560 N	√
3.2	Seat front edge static load test.	6.2.2	10	1600 N	√
3.3	Additional seat and back static load test for tilting chairs, reclining chairs and loungers.	6.3		Loads according to formulas in SS-EN 1728	-
3.4	Vertical static load on back.	EN 15373 Annex A2	10	Back: 600 N Seat: 1300 N	√
3.5	Foot rail/foot rest and leg rest static load test.	6.4	10	1300 N	-
3.6	Arm sideways static load test.	6.5	10	600 N	-
3.7	Wing sideways static load test.	6.5	10	400 N	-
3.8	Arm downwards static load test.	6.6	10	900 N	-
3.9	Vertical upwards static load on armrest.	EN 15373 Annex A1	10		-
3.10	Seat and back fatigue test.	6.7	100 000	Seat: 1000N Back: 300N	√
3.11	Additional seat and back fatigue test for tilting chairs, reclining chairs and loungers.	6.9	100 000	Loads according to formulas in SS-EN 1728	-
3.12	Seat front edge fatigue test.	6.8	50 000	1000 N	√
3.13	Arm fatigue test.	6.10	50 000	400 N	-
3.14	Leg rest fatigue test.	6.11	50 000	1000 N	-
3.15	Foot rail fatigue test.	EN 15373 Annex A2	50 000	1000 N	-

3.	Strength, durability	EN 1728	Cycles	Loading	Results
3.16	Leg forward static load test.	6.12	10	Seat: 1300N Under frame: 500N	√
3.17	Leg sideways static load test.	6.13	10	Seat: 1300N Under frame: 490N	√
3.18	Diagonal static base load test.	6.14	10	500 N	-
3.19	Seat impact test.	6.15	10	Drop height 240 mm	√
3.20	Back impact test.	6.16	10	Drop height 330 mm	√
3.21	Arm impact test.	6.17	10	Drop height 330 mm	-
3.22	Drop test (multiple seating).	6.18	2x5	Drop height 300 mm	-
3.23	Auxiliary writing surface static load test.	<i>EN 15373 Annex A3</i>	10	300 N	-
3.24	Auxiliary writing surface fatigue test.	<i>EN 15373 Annex A3</i>	20 000	150 N	-

- √ The test has been completed without any remarks
 ⊗ The requirement is not fulfilled
 - Test is not relevant / not tested

5 Conclusion

At the end of the test, the tested piece did not exhibit any faults, fractures or other damage judged to affect its safety and functions when used in accordance with EN 15373:2007 level 2.

The test results apply solely to the specimen tested.

SP Technical Research Institute of Sweden Wood Technology

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