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## Testing of Spira chair

(1 appendix)

### 1 Introduction

On the instructions of Lammhults Möbel AB, an Spira chair has been tested at SP in accordance with the requirements of Möbelfakta requirement specification 4.2.1 chairs for contract use issue 0202.

### 2 Test object

According to the client the test object consisted of:

Frame:	Steel tube Ø18 x 2 mm Form 500
Seat:	Polypropen
Backrest:	Compression moulded birch veneer.
Surface finish:	Wood: Clear varnish
Surface finish:	Steel: Chrome

The test object was selected by the party commissioning the test, and arrived at SP on 21 October 2004.

### 3 Test methods and performance of tests

Before testing commenced, the test object was not conditioned for 1 week in a climate of 23° C ± 2° C and 50 % ± 5 % relative humidity as specified in the standards. All testing were carried out under these climatic conditions.

The test methods are shown in the appendix, according to Möbelfakta requirement specification 4.2.1 chairs for contract use issue 0202.

The test was carried out 22 October 2004 – 01 November 2004.

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## 4 Result

The result is reported in Appendix 1.


After carrying out the tests, the tested piece of furniture did not demonstrate any ruptures, fractures or other damages that can affect the safe use of the article as per SS-ENV 12520.

After carrying out the tests, the tested piece of furniture did not demonstrate any damages or deformations that can affect the durability or appearance.

This test result only applies to the tested sample.

**SP Swedish National Testing and Research Institute**  
**Building Technology and Mechanics - Wood Technology**

  
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### Appendix

1. Test record dated 2004-11-30 (5 pages)

This is a translation from the Swedish original document. In the event of any dispute as to the content of the document, the Swedish text shall take precedence.

# 4 TEST RECORD FOR APPLICATION FOR MÖBELFAKTA CERTIFICATE

## 4.2. Contract use

1 (5)

### 4.2.1 Seating

2004-11-30 P403364

Appendix 1

1.	General requirements	Safety	Strength/ Durability (performance)	References: Requirements
1.1	<u>Components or parts accessible during normal use shall have no burrs, sharp edges or sharp points.</u>	x ✓	-	SS-ENV 12520. Clause 4.1
1.2	<u>There shall be no open-ended tubes.</u>	x ✓	-	SS-ENV 12520. Clause 4.1
1.3	<u>Shear and squeeze points.</u> The distance between moving parts accessible during normal use shall be kept to $\leq 8$ mm or $\geq 25$ mm in any position during movement.	x	-	SS-ENV 12520. Clause 4.2
1.3.1	<u>Shear and squeeze points when setting up and folding.</u> The requirements in 1.3 are not applicable when shear and squeeze points are created only when setting up and folding.	x	-	SS-ENV 12520. Clause 4.2.1
1.3.2	<u>Shear and squeeze points under the influence of powered mechanisms.</u> The requirements in 1.3 are applicable to all moving parts created by parts operated by powered mechanisms, including springs.	x	-	SS-ENV 12520. Clause 4.2.2
1.3.3	<u>Shear and squeeze points under body weight</u> Shear and squeeze points as defined in 1.3 are not acceptable if unintentional movement of the parts may occur so that a hazard is created by the weight of the user.	x	-	SS-ENV 12520. Clause 4.2.3
1.4	<u>Shear and squeeze points shall not be created by normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest.</u> <u>All lubricated parts shall, when in normal use, be designed to protect from contact with the lubricant.</u>	-	x	Möbelfakta <sup>2)</sup>



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# 4 Test record for application for Möbelfakta certificate

2 (5)

## 4.2.1 Contract use - Seating

2004-11-30 P403364

Appendix 1

	Cont. General requirements	Safety	Strength/ Durability (performance)	References: Requirements
1.5	Knock-down furniture / assembly instructions. Parts or components being parts of a knock-down furniture shall be so prepared that the assembly can be done without any difficulties and in a reliable way. When the assembly requires an instruction it shall be easy to understand and instructive. The instruction shall by a list, a diagram or in an other way make it possible to control that all parts or components are supplied.	-	x	Möbelfakta <sup>2)</sup>
<b>2.</b>	<b>Stability</b> The seating shall not overturn. The stability requirements shall be fulfilled before and after the tests specified in clause 3 - Safety and Strength and Durability (performance).	x √	-	<b>References: Test method</b> SS-EN 1022
<b>3.</b>	<b>Safety, strength and durability (performance)</b>	<b>Safety</b>	<b>Strength / Durability (performance)</b>	<b>References: Test methods</b>
3.1	Seat and back static load test	x √	- 1)	SS-EN 1728. Clause 6.2.1
3.2	Additional seat and back static load test for tilting chairs, reclining chairs and loungers	x	- 1)	SS-EN 1728. Clause 6.3
3.3	Seat front edge static load	-	x √	SS-EN 1728 Clause 6.2.2
3.4	Foot rail/foot rest and leg rest static load test	-	x	SS-EN 1728. Clause 6.4



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## 4 Test record for application for Möbelfakta certificate

3 (5)

### 4.2.1 Contract use - Seating

2004-11-30 P403364

Appendix 1

3.	Cont. Safety, strength and durability (performance)	Cycles	Forces / loads	Safety	Strength / Durability (performance)	References: Test methods
3.5	Arm sideways static load test	10	400 N	x	- 1)	SS-EN 1728. Clause 6.5
3.6	Wing sideways static load test	10	300 N	x	- 1)	SS-EN 1728. Clause 6.5
3.7	Arm downwards static load test	10	800 N	x	- 1)	SS-EN 1728. Clause 6.6
3.8	Combined seat and back fatigue test	100 000	Seat 1000 N Back 300 N (max.)	x ✓	- 1)	SS-EN 1728. Clause 6.7
3.9	Additional seat and back fatigue test for tilting chairs, reclining chairs and loungers, inclination $\leq 70^\circ$ - backrest > 55° inclination - backrest < 55° inclination	50 000 50 000	According to formula: Seat 1000 N Back 300 N (max.)	x	- 1)	SS-EN 1728. Clause 6.9
3.10	Seat front edge fatigue test	50 000	1000 N	x ✓	- 1)	SS-EN 1728 Clause 6.8
3.11	Arm fatigue test	30 000	400 N	-	x	SS-EN 1728. Clause 6.10
3.12	Leg forward static load test	10	620 N (max.) 1300 N (balancing load)	x ✓	- 1)	SS-EN 1728. Clause 6.12
3.13	Leg sideways static load test	10	490 N (max.) 1300 N (balancing load)	x ✓	- 1)	SS-EN 1728. Clause 6.13
3.14	Seat impact test	10	Drop height 240 mm	-	x ✓	SS-EN 1728. Clause 6.15



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## 4 Test record for application for Möbelfakta certificate

4 (5)

### 4.2.1 Contract use - Seating

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Appendix 1

3.	Cont. Safety, strength and durability (performance)	Cycles	Forces / loads	Safety	Strength / Durability (performance)	References: Tests
3.15	Leg rest fatigue test	25 000	1000 N		x	SS-EN 1728. Clause 6.11
3.16	Diagonal static base load test	10	500 N		x	SS-EN 1728. Clause 6.14
3.17	Back impact test	10	Drop height 330 mm / 48°	-	x ✓	SS-EN 1728. Clause 6.16
3.18	Drop test	2 x 5	Drop height 200 mm	-	x ✓	SS-EN 1728. Clause 6.18

1) When assessing the test results the "Criteria of defects" accordance with "Strength and durability (function)", below, shall also be considered.

2) The requirement is given by Möbelfakta as no requirement is given in other standards e.g. CEN- or ISO standards  
The extent and requirements are adapted to SS-EN 13761: Office furniture – Visitors chairs.

✓ The test has been completed without any remarks

\* In clause , the force has been reduced to N in accordance with the standard

⊗ The requirement is not fulfilled



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## 4 Test record for application for Möbelfakta certificate

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### 4.2.1 Contract use - Seating

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Appendix 1

### Assessment of results

#### Safety:

After carrying out the tests, the tested piece of furniture did not demonstrate any ruptures, fractures or other damage that can affect the safe use of the article as per SS-ENV 12520. This also implies that after the testing there are no burrs, sharp edges or sharp points. See clause 1.1.

#### Strength and durability (performance):

After carrying out the tests the tested piece of furniture did not demonstrate any ruptures, fractures or other damage that can affect the durability or appearance as:

- Fracture of any member, component or joint.
- Loosening of any joint intended to be rigid.
- Deformation or wear of any part or component such that its functioning is affected.
- Loosening of any means of fixing components.
- Any movable parts that no longer open or close freely, or catches that do not operate properly.
- Clearly audible noise.
- The height change of upholstery.

When tested according to clause 3.8 or 3.9 alternatively the height change of the seat shall not exceed 25 mm.

Assessment of the height change shall be carried out according to the method described in prEN 14443: Domestic furniture – Seating – Test methods for the determination of durability of upholstery