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## Testing of Area sofa end section (1 appendix)

### 1 Introduction

On behalf of Lammhults Möbel AB, an Area sofa end section has been tested by SP in accordance with parts of Möbelfakta requirement specification 4.2.1 Seating furniture for public locations, issue 0202 and parts of SS-EN 15373:2007 Furniture - Strength, durability and safety - Requirements for non-domestic seating – level 2.

### 2 Test specimen

*Figure 1 Area sofa end section*



Frame:	OSB – Fibreboard 12 mm
Seat:	Rubber webbing, cold cured foam 60 mm
Back:	Cold cured foam 40 mm
Underframe:	Chromium plated steeltube Ø22 mm

The test specimen was selected by the customer and arrived at SP on March 4, 2009.

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### **3 Test methods and test procedure**

Before testing the test specimen was conditioned for one week in a climate of  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$  and  $50\% \pm 5\%$  relative humidity, in accordance with the standards. Testing was carried out in this climate.

The test methods are explained in Appendix 1 in accordance with Möbelfakta requirement 4.2.1 Seating furniture for public locations, issue 0202 and SS-EN 15373:2007 Furniture - Strength, durability and safety - Requirements for non-domestic seating – level 2.

The test was carried over the period March 19 – 27, 2009.

### **4 Results**


The result is reported in Appendix 1.

At the end of the test, the tested piece did not exhibit any faults, fractures or other damage judged to affect its safety when used in accordance with SS-ENV 12520. The requirement has been met.

At the end of the test, the tested piece did not exhibit any damage or deformation which is expected to affect its function or appearance.

The test results apply solely to the specimen tested.

**SP Technical Research Institute of Sweden**  
**Wood Technology**



Mikael Calestam  
Technical Manager



Bengt-Åke Andersson  
Technical Officer

### **Appendix**

Test record (4 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.

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Appendix 1

## 4.2. Contract use

### 4.2.1 Seating

1.	General requirements	Performance	References: Requirements
1.1	<u>Components or parts</u> accessible during normal use shall have no burrs, sharp edges or sharp points.	√	SS-ENV 12520. Clause 4.1
1.2	There shall be no <u>open-ended tubes</u> .	√	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 ≤ 8 mm or ≥ 25 mm in any position during movement.		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.		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.		SS-ENV 12520. Clause 4.2.2
1.3.3	<u>Shear and squeeze points under body weight</u> <u>Shear and squeeze points as defined in 1.3</u> are not acceptable if unintentional movement of the parts may occur so that a hazard is created by the weight of the user. <u>Shear and squeeze points</u> 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.		SS-ENV 12520. Clause 4.2.3
1.4	All <u>lubricated parts</u> shall, when in normal use, be designed to protect from contact with the lubricant.		Möbelfakta <sup>2)</sup>
1.5	<u>Knock-down furniture / assembly instructions</u> . 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.		Möbelfakta <sup>2)</sup>

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Appendix 1

## 4.2. Contract use

### 4.2.1 Seating

2.	Stability	Performance	References: Test method
	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).	√	SS-EN 1022

3.	Test	Cycles	Load	Performance (level 2)	Reference
3.1	Seat and back static load test	10	Seat: 1600N Back: 560N		SS-EN 1728.Clause.6.2.1
3.2	Seat front edge static load test	10	1600 N		SS-EN 1728.Clause.6.2.2
3.3	Additional seat and back static load test for tilting chairs, reclining chairs and loungers	10	1) Seat: 1600N Back: 560N		SS-EN 1728.Clause.6.3
3.4	Vertical static load on back	10	Back: 600 N Seat load: 1300 N		SS-EN 15373 Annex A.2
3.5	Foot rail/foot rest and leg rest static load test	10	1300 N		SS-EN 1728.Clause.6.4
3.6	Arm sideways static load test	10	600 N	√	SS-EN 1728.Clause.6.5
3.7	Wing sideways static load test	10	400 N		SS-EN 1728.Clause.6.5
3.8	Arm downwards static load test	10	900 N	√	SS-EN 1728.Clause.6.6
3.9	Vertical upwards static load on armrest	10	Seat load: 1000 N		SS-EN 15373 Annex A.1
3.10	Seat and back fatigue test	100 000	Seat: 1000 N Back: 300 N		SS-EN 1728.Clause.6.7
3.11	Additional seat and back fatigue test for tilting chairs, reclining chairs and loungers ≤ 70° - Backrest in upright position - Backrest in reclined position	50 000 50 000	1) Seat: 1000 N Back: 300 N		SS-EN 1728.Clause.6.9

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Appendix 1

## 4.2. Contract use

### 4.2.1 Seating

3.	Test	Cycles	Load	Performance (level 2)	Reference
3.12	Seat front edge fatigue test	50 000	1000 N		SS-EN 1728.Clause.6.8
3.13	Arm fatigue test	50 000	400 N	√	SS-EN 1728.Clause.6.10
3.14	Leg rest fatigue test	50 000	1000 N		SS-EN 1728.Clause.6.11
3.15	Foot rail fatigue test	50 000	1000 N		SS-EN 15373 Annex A.1
3.16	Leg forward static load test	10	Under frame: 620 N <sup>1</sup> Seat: 1300 N		SS-EN 1728.Clause.6.12
3.17	Leg sideways static load test	10	Under frame: 490 N Seat: 1300 N		SS-EN 1728.6.13
3.18	Diagonal static base load test	10	500 N		SS-EN 1728.Clause.6.14
3.19	Seat impact test	10	Drop height: 240 mm		SS-EN 1728.Clause.6.15
3.20	Back impact test	10	Drop height: 330 mm		SS-EN 1728.Clause.6.16
3.21	Arm impact test	10	Drop height: 330 mm	√	SS-EN 1728.Clause.6.17
3.22	Drop test (multiple seating)	2x5	Drop height: 300 mm		SS-EN 1728.Clause.6.18
3.23	Auxiliary writing surface static load test	10	300 N		SS-EN 15373 Annex A.3
3.24	Auxiliary writing surface fatigue test	20 000	150 N		SS-EN 15373 Annex A.3

1) Stress levels shall be calculated according to formulas in SS-EN 1728

√ The test has been completed without any remarks

⊗ The requirement is not fulfilled

<sup>1</sup> Leg forward static load test 620 N, according to Möbelfakta

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Appendix 1

4.2. Contract use

4.2.1 Seating

## 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 it's 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 3.10 or 3.11 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 if durability of upholstery