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## Testing of Rib chair

(1 appendix)

### 1 Introduction

On behalf of Johanson Design AB, a Rib chair has been tested at SP in accordance with SS-EN 15373:2007 level 2, the test is consistent with the requirements of FMV<sup>1</sup> for Seating furniture for contract use, dated 2007.12.17.

### 2 Test specimen

*Figure 1 Rib chair*



Seat/backrest: Pressed felt  
Legs: Steel tube Ø16.2 mm

The test specimen was selected by the customer and arrived at SP 2010.01.21.

<sup>1</sup> Swedish Defence Material Administration

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### 3 Test methods and test procedure

The test was performed according to SS-EN 15373:2007 Furniture – Strength, durability and safety – Requirements for non-domestic seating, level 2 and SS-EN 1022 Domestic furniture – Seating – Determination of stability.

Before testing the test specimen was not 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 standard. Testing was carried out in this climate.

The test methods are explained in Appendix 1, and comply with the requirements of FMV for seating furniture for contact use, dated 2007.12.17.

The test was carried out over the period 2010.01.25 – 02.01.

### 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 requirements according strength has been met.

The test results apply solely to the specimen tested.

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

A blue ink signature of Bertil Johansson.

Bertil Johansson  
Technical Manager

A blue ink signature of Bengt-Åke Andersson.

Bengt-Åke Andersson  
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### Appendix

Test record (3 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.

## Seating

## Appendix 1

| 1.    | General requirements   | Performance | References:<br>Requirements |
|-------|--|-------------|-----------------------------|
| 1.1   | Components or parts 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 open-ended tubes.  | ✓           | SS-ENV 12520. Clause 4.1    |
| 1.3   | Shear and squeeze points.<br>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 | Shear and squeeze points when setting up and folding.<br>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 | Shear and squeeze points under the influence of powered mechanisms.<br>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 | Shear and squeeze points under body weight<br>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.<br>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.  | -           | SS-ENV 12520. Clause 4.2.3  |
| 1.4   | All lubricated parts shall, when in normal use, be designed to protect from contact with the lubricant.  | -           |                             |
| 1.5   | Knock-down furniture / assembly instructions.<br>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.<br>When the assembly requires an instruction it shall be easy to understand and instructive.<br>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. | -           |                             |

## 2. Stability

| 2. Stability   | References:<br>Test method |
|--|----------------------------|
| 2. The seating shall not overturn.<br>The stability requirements shall be fulfilled before and after the tests specified in clause 3 - Safety and Strength and Durability (performance). | ✓<br>SS-EN 1022            |



**Seating****Appendix 1**

| <b>3. Test</b>   | <b>Reference</b>        | <b>Load</b>  | <b>Cycles</b> | <b>Level 2</b>                  |
|--|-------------------------|--------------|---------------|---------------------------------|
| 3.1 Seat and back static load test   | SS-EN 1728.Clause.6.2.1 | Seat<br>Back | 10            | 1600 N<br>560 N<br>✓            |
| 3.2 Seat front edge static load test   | SS-EN 1728.Clause.6.2.2 |              | 10            | 1600 N<br>✓                     |
| 3.3 Additional seat and back static load test <sup>2</sup><br>for tilting chairs, reclining chairs and<br>loungers | SS-EN 1728.Clause.6.3   | Seat<br>Back | 10            | 1600 N<br>560 N max<br>-        |
| 3.4 Vertical static load on back   | SS-EN 15373 Annex A.2   |              | 10            | 600 N<br>Seat load: 1300 N<br>✓ |
| 3.5 Foot rail/foot rest and leg rest static<br>load test   | SS-EN 1728.Clause.6.4   |              | 10            | 1300 N<br>-                     |
| 3.6 Arm sideways static load test  | SS-EN 1728. Clause.6.5  |              | 10            | 600 N<br>-                      |
| 3.7 Wing sideways static load test   | SS-EN 1728. Clause.6.5  |              | 10            | 400 N<br>-                      |
| 3.8 Arm downwards static load test <sup>7</sup>  | SS-EN 1728. Clause.6.6  |              | 10            | 900 N<br>-                      |
| 3.9 Vertical upwards static load on armrest  | SS-EN 15373 Annex A.1   |              | 10            | Seat load: 1000 N               |
| 3.10 Seat and back fatigue test  | SS-EN 1728.Clause.6.7   | Seat<br>Back | 100 000       | 1000 N<br>300 N<br>✓            |
| 3.11 Additional seat and back fatigue test for<br>tilting chairs, reclining chairs and<br>loungers <sup>2</sup>    | SS-EN 1728.Clause.6.9   | Seat<br>Back | 100 000       | 1000 N<br>300 N<br>-            |
| 3.12 Seat front edge fatigue test  | SS-EN 1728.Clause.6.8   |              | 50 000        | 1000 N<br>✓                     |
| 3.13 Arm fatigue test  | SS-EN 1728.Clause.6.10  |              | 50 000        | 400 N<br>-                      |

<sup>2</sup> Stress levels shall be calculated according to formulas in SS-EN 1728

## Appendix 1

**Seating**

|  |                        |                     |        |                 |   |
|--|------------------------|---------------------|--------|-----------------|---|
| 3.14 Leg rest fatigue test                         | SS-EN 1728.Clause.6.11 |                     | 50 000 | 1000 N          | - |
| 3.15 Foot rail fatigue test                        | SS-EN 15373 Annex A.1  |                     | 50 000 | 1000 N          | - |
| 3.16 Leg forward static load test                  | SS-EN 1728.Clause.6.12 | Under frame<br>Seat | 10     | 500 N<br>1300 N | ✓ |
| 3.17 Leg sideways static load test                 | SS-EN 1728.6.13        | Under frame<br>Seat | 10     | 490 N<br>1300 N | ✓ |
| 3.18 Diagonal static base load test                | SS-EN 1728.Clause.6.14 |                     | 10     | 500 N           | - |
| 3.19 Seat impact test                              | SS-EN 1728.Clause.6.15 | Drop height         | 10     | 240 mm          | ✓ |
| 3.20 Back impact test                              | SS-EN 1728.Clause.6.16 | Drop height         | 10     | 330 mm          | ✓ |
| 3.21 Arm impact test                               | SS-EN 1728.Clause.6.17 | Drop height         | 10     | 330 mm          | - |
| 3.22 Drop test (multiple seating)                  | SS-EN 1728.Clause.6.18 | Drop height         | 2x5    | 300 mm          | - |
| 3.23 Auxiliary writing surface static load<br>test | SS-EN 15373 Annex A.3  |                     | 10     | 300 N           | - |
| 3.24 Auxiliary writing surface fatigue test        | SS-EN 15373 Annex A.3  |                     | 20 000 | 150 N           | - |

✓ The test has been completed without any remarks

⊗ The requirement is not fulfilled

- Not applicable