

Lundbergs Möbler AB
Box 270
543 23 TIBRO
Sweden

Testing of Tova chair

(1 appendix)

Summary

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

1 Introduction

On behalf of Lundbergs Möbler, a Tova 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 Tova chair

Dimensions: W=480 mm, D=500 mm, H=790 mm
Seat height: 445 mm
Frame: Solid ash
Seat: Moulded laminated plywood
Back rest: Moulded laminated plywood

The test specimen was selected by the customer and arrived at SP 2013-02-20.

SP Technical Research Institute of Sweden

Postal address
SP
Box 857
SE-501 15 BORÅS
Sweden

Office location
Västeråsen
Brinellgatan 4
SE-504 62 BORÅS

Phone / Fax / E-mail
+46 10 516 50 00
+46 33 13 55 02
info@sp.se

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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 and 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 2013-02-27 – 2013-03-07.

4 Results

Table 1

1.	General requirements	EN 15373	Req. fulfilled
1.1	Components or parts accessible during normal use shall have no burrs, sharp edges or sharp points.	5.1	Passed
1.2	There shall be no open-ended tubes.	5.1	N/a
1.3	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	5.1	N/a
1.4	Load bearing part of the seating shall not be possible to come loose unintentionally.	5.1	Passed
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	N/a
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	N/a
1.7	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	N/a
1.8	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.	5.2.3	N/a

Table 2

2.	Stability	EN 1022	Req. fulfilled
2.1	Forwards overbalancing.	6.2	Passed
2.2	Forwards overturning for seating with footrest.	6.3	N/a
2.3	Sideways overbalancing, all seating without arms.	6.4	Passed
2.4	Sideways overbalancing, all seating with arms.	6.5	N/a
2.5	Rearwards overbalancing, all seating with backs.	6.6	Passed

Table 3

3.	Strength, durability	Reference EN 1728	Cycles	EN 15373 level 2	Req. fulfilled
3.1	Seat and back static load test.	6.2.1	10	Seat: 1600 N Back: 560 N	Passed
3.2	Seat front edge static load test.	6.2.2	10	1600 N	Passed
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	N/a
3.4	Vertical static load on back.	<i>EN 15373 Annex A2</i>	10	Back: 600 N Seat: 1300 N	Passed
3.5	Foot rail/foot rest and leg rest static load test.	6.4	10	1300 N	N/a
3.6	Arm sideways static load test.	6.5	10	600 N	N/a
3.7	Wing sideways static load test.	6.5	10	400 N	N/a
3.8	Arm downwards static load test.	6.6	10	900 N	N/a
3.9	Vertical upwards static load on armrest.	<i>EN 15373 Annex A1</i>	10		N/a
3.10	Seat and back fatigue test.	6.7	100 000	Seat: 1000N Back: 300N	Passed
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	N/a
3.12	Seat front edge fatigue test.	6.8	50 000	1000 N	Passed
3.13	Arm fatigue test.	6.10	50 000	400 N	N/a
3.14	Leg rest fatigue test.	6.11	50 000	1000 N	N/a
3.15	Foot rail fatigue test.	<i>EN 15373 Annex A2</i>	50 000	1000 N	N/a
3.16	Leg forward static load test.	6.12	10	Seat: 1300N Under frame: 500N	Passed
3.17	Leg sideways static load test.	6.13	10	Seat: 1300N Under frame: 490N	Passed
3.18	Diagonal static base load test.	6.14	10	500 N	N/a
3.19	Seat impact test.	6.15	10	Drop height 240 mm	Passed

3.	Strength, durability	Reference EN 1728	Cycles	EN 15373 level 2	Req. fulfilled
3.20	Back impact test.	6.16	10	Drop height 330 mm	Passed
3.21	Arm impact test.	6.17	10	Drop height 330 mm	N/a
3.22	Drop test (multiple seating).	6.18	2x5	Drop height 300 mm	N/a
3.23	Auxiliary writing surface static load test.	<i>EN 15373 Annex A3</i>	10	300 N	N/a
3.24	Auxiliary writing surface fatigue test.	<i>EN 15373 Annex A3</i>	20 000	150 N	N/a

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

Performed by

Examined by

Hans Eriksson

Bengt-Åke Andersson

Appendix

1. Pictures (1 pages)

Appendix 1

Pictures



Figure 2 Tova chair, front view



Figure 3 Tova chair, side view



Figure 4 Tova chair, from behind



Figure 5 Tova chair, underside