

Lundbergs Möbler AB
Box 270
543 23 TIBRO
SWEDEN

Testing of arm rests on Tova armchair

(1 appendix)

Summary

The arm rests on Tova armchair meet the requirements for strength and security according to EN 16139:2013, level 1.

1 Introduction

On behalf of Lundbergs Möbler, a limited test on Tova armchair has been done at SP, to determine the strength, durability and safety of the arm rests, in accordance with EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating, level 1.

2 Test specimen



Figure 1 Tova armchair

Armrests length: 207 mm
Armrests height: 26-31 mm
Armrests width: 22-28 mm
Other info: Armchair/arm rests in solid ash

The test specimen was selected by the customer and arrived at SP 2013-12-18.

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 16139:2013 Furniture – Strength, durability and safety – Requirements for non-domestic seating, level 1 and EN 1022:2005 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 2014-01-13 – 2014-01-22.

4 Results

Table 1

1.	General requirements	EN 16139	Req. fulfilled
1.1	Accessible corners shall be rounded or chamfered.	4.1	Passed
1.2	Edges of the seat, back rest and arm rests which are in contact with the user when sitting in the chair shall be rounded or chamfered.	4.1	Passed
1.3	Edges of handles shall be rounded or chamfered in the direction of the force applied.	4.1	-
1.4	All other edges shall be free from burrs and rounded or chamfered.	4.1	-
1.5	Ends of hollow components shall be closed or capped.	4.1	-
1.6	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	4.1	-
1.7	It shall not be possible for any load bearing part of the seating to come loose unintentionally.	4.1	-
1.8	All parts which are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.	4.1	-
1.9	No shear and squeeze points when setting up and folding.	4.2.1	-
1.10	No shear and squeeze points under influence of powered mechanism.	4.2.2	-
1.11	No shear and squeeze points during use.	4.2.3	-

Table 2

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

Table 3

3.	Strength, durability	Reference EN 1728	Cycles	EN 16139 level 1	Req. fulfilled
3.1	Seat and back static load test.	6.4	10	Seat: 1600 N Back: 560 N	-
3.2	Seat front edge static load test.	6.5	10	1300 N	-
3.3	Vertical static load on back rests.	6.6	10	600 N Seat: 1300 N	-
3.4	Foot rest and leg rest static load test.	6.8 and 6.9	10	1300 N	-
3.5	Arm sideways static load test.	6.10	10	400 N	Passed
3.6	Arm downwards static load test.	6.11	5	750 N	Passed
3.7	Vertical upwards static load on arm rests.	6.13.1 and 6.13.2	10	250 N	Passed
3.8	Seat and back durability test.	6.17	100 000	Seat: 1000N Back: 300 N	-
3.9	Seat front edge durability test.	6.18	50 000	800 N	-
3.10	Arm durability test.	6.20	30 000	400 N	Passed
3.11	Foot rest durability test.	6.21	50 000	1000 N	-
3.12	Leg forward static load test.	6.15	10	500N Seat: 1000 N	-
3.13	Leg sideways static load test.	6.16	10	400 N Seat: 1000 N	-
3.14	Seat impact test.	6.24	10	240 mm	-
3.15	Back impact test.	6.25	10	210/38 mm/°	Passed
3.16	Arm impact test.	6.26	10	210/38 mm/°	Passed
3.17	Drop test (multiple seating).	6.27.1	2x5		-
3.18	Auxiliary writing surface static load test.	6.14	10	300 N	-
3.19	Auxiliary writing surface durability test.	6.22	10 000	150 N	-

5 Conclusion

At the end of the test, the tested furniture's arm rests did not exhibit any faults, fractures or other damage judged to affect its safety and functions when used in accordance with EN 16139:2013 level 1.

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 page)

Appendix 1

Pictures

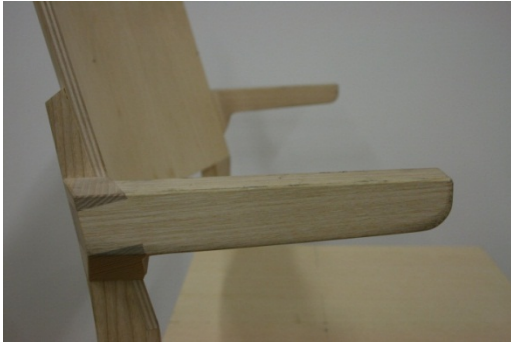


Figure 2 Tova, arm rest



Figure 3 Tova, arm rest



Figure 4 Tova, arm rest



Figure 5 Tova armchair, front view



Figure 6 Tova armchair, from behind