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Testing of Diagonal sofa

(1 appendix)

Summary

Diagonal sofa met the requirements for strength and safety according to EN 16139:2013, level 1.

1 Introduction

On behalf of Martela AB, a Diagonal sofa has been tested at SP in accordance with EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating, level 1.

2 Test specimen



Figure 1 Diagonal sofa

Dimension: H=86 cm (with screen), W=202 cm, D=113 cm
Seat height: 41 cm 3 elements, 51 cm 1 element
Frame: Each element is a box of plywood with padding and covered with fabrics
Base: Plywood, height 50 mm
Screen: Board of wood, padding, covered with fabrics, mass 23 kg
Other info: Mass of 4 elements and base=77 kg

The test specimen was selected by the customer and arrived at SP 2015-01-23.

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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 2015-02-03 – 2015-02-13.

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	N/A
1.4	All other edges shall be free from burrs and rounded or chamfered.	4.1	Passed
1.5	Ends of hollow components shall be closed or capped.	4.1	N/A
1.6	Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.	4.1	N/A
1.7	It shall not be possible for any load bearing part of the seating to come loose unintentionally.	4.1	Passed
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	N/A
1.9	No shear and squeeze points when setting up and folding.	4.2.1	N/A
1.10	No shear and squeeze points under influence of powered mechanism.	4.2.2	N/A
1.11	No shear and squeeze points during use.	4.2.3	Passed

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	N/A

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	Passed N/A
3.2	Seat front edge static load test.	6.5	10	1300 N	Passed
3.3	Vertical static load on back rests.	6.6	10	600 N Seat: 1300 N	N/A
3.4	Foot rest and leg rest static load test.	6.8 and 6.9	10	1300 N	N/A
3.5	Arm sideways static load test.	6.10	10	400 N	N/A
3.6	Arm downwards static load test.	6.11	5	750 N	N/A
3.7	Vertical upwards static load on arm rests for stackable seating	6.13.2	10	250 N	N/A
3.7 Annex B	Vertical upwards static load on arm rests for seating which may be moved when occupied	6.13.1	10	1200 N	N/A
3.8	Seat and back durability test.	6.17	100 000	Seat: 1000N Back: 300 N	Passed N/A
3.9	Seat front edge durability test.	6.18	50 000	800 N	Passed
3.10	Arm durability test.	6.20	30 000	400 N	N/A
3.11	Foot rest durability test.	6.21	50 000	1000 N	N/A
3.12	Leg forward static load test.	6.15	10	500N Seat: 1000 N	N/A
3.13	Leg sideways static load test.	6.16	10	400 N Seat: 1000 N	N/A
3.14	Seat impact test.	6.24	10x2	240 mm	Passed
3.15	Back impact test.	6.25	10	210/38 mm/°	Passed
3.16	Arm impact test.	6.26	10	210/38 mm/°	N/A
3.17	Drop test (multiple seating).	6.27.1	2x5		N/A
3.18	Auxiliary writing surface static load test.	6.14	10	300 N	N/A
3.19	Auxiliary writing surface durability test.	6.22	10 000	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 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

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Appendix

1. Pictures (1 page)

Appendix 1

Pictures



Figure 2 With screen



Figure 3 Without screen



Figure 4 Underneath

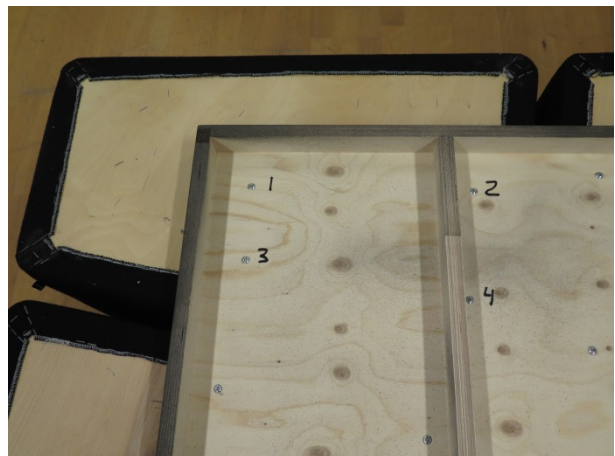


Figure 5 Elements attachment to base