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|--------------------------|--|------------------------|
| Product | Alku S/S 180x120 | |
| Test requested by | Martela Oyj, Takkatie 1, 00370 Helsinki | |
| Test specimen | Table top | 1800x1200 mm |
| | Top material | 22 mm particleboard |
| | Frame | Steel |
| | Column | Steel |
| | Leg | Steel |



Test method Determination of dimensions, mechanical safety requirements, stability and mechanical strength of an office work desk.

Tests were carried out according to the standards below. Detailed test program with results is presented in pages 2-3.

EN 527-2:2002 Office furniture - Worktables and desks - Part 2: Mechanical safety requirements

EN 527-3:2003 Office furniture - Worktables and desks - Part 3: Methods of test for determination of the stability and mechanical strength of the structure.

ISO 21016:2007 clauses 6.1, 6.5.3. Office furniture — Tables and desks — Test methods for the determination of stability, strength and durability

The test specimen was selected by Martela and arrived at Testing laboratory November 11, 2016. Tests were carried out November 14 – November 28, 2016 in temperature 15°C - 25°C.

Assessment of results

Alku S/S 180x120top meets the safety, stability and mechanical strength requirements of an office work desk presented in the standards EN527-2:2002 and EN527-3:2003 and partially presented tests of standard ISO21016:2007.

The test result is only valid to the specimen tested and no other.

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Martela Testing laboratory

Nummela, December 19, 2016

approved by:

Tero Karttunen
Quality and Test Manager

tested by:

Jarno Forsman
Laboratory Engineer

Ref. Lab report No.1387

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Table 1. EN 527-2: 2002 Office furniture- Worktables and desks- Part 2: Mechanical safety requirements

| | Requirement | Record | RESULT |
|--|---|--|---|
| (3) GENERAL DESIGN REQUIREMENTS | - all edges and corners are free from burrs and rounded or chamfered | Record whether the requirements are filled | OK |
| | - in order to avoid points of high pressure under the forearms, during prolonged contact with work tops, the edges and corners of the top surfaces are rounded with a radius of not less than 2 mm; | | OK |
| | - movable and adjustable parts are designed to minimize the risk of injuries and inadvertent operation or release; | | OK |
| | - the safety distance between accessible movable parts is either ≥ 8 mm or ≥ 25 mm in any position during movement. This applies to any elements moving relative to each other, with the exception of doors (including hinges) and extension elements (including runners); | | OK |
| | - the handles are designed so that they cannot trap fingers during intended use; | | OK |
| | - the ends of feet and hollow components are closed or capped. | | OK |
| (4) STRUCTURAL SAFETY REQUIREMENTS | The table shall be tested in the following sequence of tests of EN 527-3: - stability (optional); strength under horizontal force; strength under vertical force; fatigue under horizontal force; fatigue under vertical force; stability; drop test. These requirements are fulfilled when after the tests specified in 5.2 to 5.6 of EN 527-3:2002: | Record whether the requirements are filled | OK |
| | - there is no fracture of any member, joint or component; | | OK |
| | - there is no loosening of joints intended to be rigid; | | OK |
| | - no major structural element is significantly deformed; | | OK |
| | - the table fulfils its functions after removal of test loads; | | OK |
| | - adjusting screws fulfil their functions. | | OK |
| | (4.3) STABILITY REQUIREMENTS | | During the stability test specified in 5.1 of EN 527-3:2002: - the table does not overbalance or rest supported on the drawers and all feet return to the ground when the loads are removed. |

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Table 2. Requirements in EN 527-3:2003 Office furniture - Worktables and desks – Part 3: Methods of test for determination of the stability and mechanical strength of the structure

| | Cycles | Load, direction | Record | RESULTS |
|---|------------|--|--|----------------------------------|
| (5.1) STABILITY a) Stability, vertical loading | 1 | 750 N, vertical | Record whether the table overturns | OK |
| b) Stability, drawers open | | | | |
| (5.1 and 5.3) STRENGTH a) vertical load | 10 | 1000N/10sec. | Record any defects | OK |
| b) horizontal force | 10 | 450 N/ 10 sec. If tendency to overturn, incline the force downwards | Record any defects | OK |
| (5.4 and 5.5) DURABILITY, a) horizontal force | 5000 +5000 | 300N horizontal forces, (reduced if the table tends to lift), + tabletop uniformly loaded with max. 100kg | Record any defects | OK |
| b) vertical force | 10 000 | 400 N/ 2 sec | Record any defects | OK |
| (5.6) DROP TEST | 5 | | Record any defects | OK |
| APPENDIX A (informative) Rigidity index | | 200 N (a, b, c and d) | Determine the index using the formula $k_l = 100 (d_A + d_B) / 3y$ $k_t = 100 (d_c + d_d) / 3y$, where $y=200$. | $k_l = 0,7$ $k_t = 0,3$ OK |
| DEFECTS AND OBSERVATIONS AFTER TEST PROCEDURE | None | | | |

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Table 3: Requirements in ISO 21016:2007 Office furniture — Tables and desks — Test methods for the determination of stability, strength and durability

| | Cycles | Load, direction | Application point | Pad | Record | RESULTS |
|---|--|--|--|-------|---|---------|
| (6.1) STABILITY | | | | | | |
| a) Max height 950mm | 1 | 750N, vertical | 100mm from the edge at the point most likely to overturn the table | 100mm | Record weather the table overturns | N/A |
| b) Max height more than 950mm | 1 | 375N, vertical | | | | OK |
| (6.5.3) STIFFNESS OF THE STRUCTURE | | | | | | |
| a) longitudinal direction | 1 | 300N / 2sec | Center of longitudinal centreline and both sides | | Record D (sum D1 and D2) | 4mm |
| b) transverse direction | 1 | 300N / 2sec | Center of transverse centreline and both sides | | Record D (sum D1 and D2) | 2mm |
| (6.6) DURABILITY OF THE HEIGHT ADJUSTMENT MECHANISM | Work tables: 5000 Other tables 2500 | Load the table top with 45 kg applied on the centre of a line 300 mm in from the rear edge of the surface and at the side to side locations noted below. | -First 25% of cycles: Position the centre of the load 300 mm in from the left edge of the surface. - Next 50 % of cycles: Position the centre of the load in the middle of the surface. - Last 25 % of cycles: Position the centre of the load 300 mm in from the right edge of the surface. | | Record and assess defects in accordance with 4.9. | N/A |

End of report.

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