

# Test Report

## Revision 1

Report No.: 829142-1



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Order no.: 829142  
No. of appendices: 2

**Subject:** Model: Shelf 780x200 – also covers 580x200 - suspended on steel panels fastened to the wall  
Panels in the following sizes:  
500x200 mm and 750x200 mm

|            |              |        |        |         |        |
|------------|--------------|--------|--------|---------|--------|
| Type:      | Storage Unit |        |        |         |        |
| Length:    | 850 mm       | Width: | 200 mm | Height: | 740 mm |
| Weight     | 4.5 kg       |        |        |         |        |
| Materials: | Metal        |        |        |         |        |

**Sampling:** The test material was sampled by the client and received at the Danish Technological Institute 24-09-2018.

**Method:** **EN 16121:2017+A1:2017** Non-domestic storage furniture – Requirements for safety, strength, durability and stability – Test severity 1

**EN 16122:2012** Domestic and non-domestic storage furniture – Test method for the determination of strength, durability and stability

**Period:** The testing was carried out from 24-09-2018 to 15-10-2018.

**Result:** Model Shelf 780x200 fulfils the requirements of EN 16121:2017+A1:2017 and EN 16122:2012.

Individual results appear from Appendix 1.

**Storage:** The test material will be destroyed after 1 month, unless otherwise agreed.

**Terms:** The accredited test was carried out according to DANAK's general conditions see [www.danak.dk](http://www.danak.dk) and according to the General Terms and Conditions regarding Commissioned Work Accepted by the Danish Technological Institute, which apply at the time of signing the agreement. The test is only valid for the tested specimen. The test report may only be extracted, if the laboratory has approved the extract.

**Note:** Rev. 1 due to addition of panels under "Subject", page 1

**Date/place:** 22-10-2018, Danish Technological Institute, Wood and Biomaterials, Taastrup  
Replaces report dated 15-10-2018

**Signature:** Test responsible

Co-signatory



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## Testing of Model: Shelf 780x200

### EN 16121:2013

#### 5. Safety Requirements

The tests contained are only considered to affect the safety when:

- the height of the centre of gravity of the unit, or any part, is >650 mm above the floor and the total mass is >10 kg or
- when the potential energy of the unit or any part is >65 Nm and the height of the centre of gravity of the unit, or any part, is ≤650 mm

**Table 4 – Safety Tests**

| Test no. | Test                                                                                             | Reference EN 16122:2012 | Loading                                                                                                | Requirement                        | Result |
|----------|--------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------|--------|
| 5.7.1.1  | Static load test for tops and bottoms                                                            | 6.2.2                   | Force, N<br>Cycles                                                                                     | 750<br>10                          | N/A    |
| 5.7.1.2  | Shelf retention test – horizontal outward                                                        | 6.1.2                   | Force, N                                                                                               | 50% of un-loaded shelf weight      | Passed |
| 5.7.1.3  | Shelf retention test – vertical downward                                                         | 6.1.3                   | Force, N                                                                                               | 100                                | Passed |
| 5.7.1.4  | Strength of shelf supports                                                                       | 6.1.5                   | Cycles<br>Mass per unit area, kg/dm <sup>2</sup><br>Steel impact plate EN 16122:2012. Table 1          | 10<br>0.65<br>1                    | Passed |
| 5.7.1.5  | Vertical load on pivoted doors                                                                   | 7.1.2                   | Mass, kg<br>10 cycles                                                                                  | 30                                 | N/A    |
| 5.7.1.6  | Horizontal load on pivoted doors <sup>a</sup>                                                    | 7.1.3                   | Force, N<br>10 cycles                                                                                  | 60                                 | N/A    |
| 5.7.1.7  | Strength of bottom-hinged flaps                                                                  | 7.3.1                   | Force, N<br>Cycles                                                                                     | 200<br>10                          | N/A    |
| 5.7.1.8  | Strength of extension elements <sup>b</sup>                                                      | 7.5.2                   | Force, N<br>Cycles                                                                                     | 200<br>10                          | N/A    |
| 5.7.1.9  | Slam shut and open of extension elements <sup>c</sup>                                            | 7.5.4                   | Velocity, m/s at calibration points<br>Slam open 5 kg<br>Slam shut 35 kg<br>Factor K<br>Mass in drawer | 1.30<br>1.00<br>2.5<br>See table 1 | N/A    |
| 5.7.1.10 | Interlock test                                                                                   | 7.5.6                   | Force, N<br>Cycles                                                                                     | 200<br>10                          | N/A    |
| 5.7.1.11 | Test for structure and underframes                                                               | 6.4.1                   | Force, N<br>Cycles                                                                                     | 350<br>10                          | N/A    |
| 5.7.1.12 | Test of unit with castors or wheels <sup>d</sup>                                                 | 6.4.3                   | Cycles                                                                                                 | 2.000                              | N/A    |
| 5.7.1.13 | Overload test                                                                                    | 10.1.3                  | Mass per unit area, kg/dm <sup>3</sup>                                                                 | 2.5                                | Passed |
| 5.7.1.14 | Dislodgement test                                                                                | 10.1.4                  | Force, N                                                                                               | 100                                | Passed |
| 5.7.1.15 | Units supported by the floor                                                                     | 10.2                    | Force, N                                                                                               | 200                                | N/A    |
| 5.7.2    | Structural safety requirements                                                                   |                         |                                                                                                        |                                    |        |
|          | a) There are no fractures of any member, joint or component                                      |                         |                                                                                                        |                                    | Passed |
|          | b) Units attached to the structure of the building shall remain attached and carry the test load |                         |                                                                                                        |                                    | Passed |
|          | c) The storage unit fulfils the stability requirements (5.6)                                     |                         |                                                                                                        |                                    | N/A    |

<sup>a</sup> This test shall only be applied to doors with an opening angle less than or equal to 135°

<sup>b</sup> The extension element shall be loaded in accordance with Table 1

<sup>c</sup> For safety tests only the slam open test shall be performed. Table 5 contains requirements for slam shut test

<sup>d</sup> This test shall be performed on a horizontal, smooth steel surface

N/A Not applicable

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| Test no. | Test                      | Reference<br>EN 14072:2003 | Loading          | Requirement          | Result |
|----------|---------------------------|----------------------------|------------------|----------------------|--------|
| 5.5      | Vertical glass components | Clause 5                   | Clauses 4.4, 4.7 | Drop height<br>70 mm | N/A    |

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## Testing of Model: Shelf 780x200

### 5.6 Stability

The requirements for stability only apply to units, where the height to the top of the unit is 650 mm or more above the floor level, and when the potential energy, exceeds the value 65.

Where specified, the unit shall be loaded in accordance with the loads specified in Table 2. When the unit or component is conspicuously and durably marked by the manufacturer with a maximum load, the unit or component shall be loaded with the stated maximum load multiplied by 0.5, but the load shall not exceed the value calculated using Table 2.

**Table 3 – Stability Tests**

| Test no.                                                                                                                                                            | Test                                                                                                                                          | Reference<br>EN 16122:2012 | Loading                               | Requirement                                                    | Result |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------|----------------------------------------------------------------|--------|
| 5.6.1                                                                                                                                                               | Doors, extension elements and flaps closed, all storage units unloaded – units that are, or can be, adjusted to a height of 1000 mm or less   | 11.2.1                     | Vertical force, N                     | 750                                                            | N/A    |
| 5.6.2                                                                                                                                                               | Doors, extension elements and flaps closed, all storage units unloaded – units that are, or can be, adjusted to a height of more than 1000 mm | 11.2.2                     | Vertical force, N<br>Outward force, N | 350<br>50                                                      | N/A    |
| 5.6.3                                                                                                                                                               | All storage areas unloaded and all doors, extension elements and flaps open                                                                   | 11.4.1                     | -                                     | -                                                              | N/A    |
| 5.6.4                                                                                                                                                               | All storage areas unloaded with overturning load                                                                                              | 11.4.2                     | Vertical force, N                     | 100                                                            | N/A    |
| 5.6.5                                                                                                                                                               | All storage areas loaded with overturning load                                                                                                | 11.4.3                     | Vertical force, N                     | 20% of total mass (3.5) of the unit but not greater than 300 N | N/A    |
| 5.6.6                                                                                                                                                               | Doors, extension elements and flaps closed and locked                                                                                         | 11.5                       | Outward force, N                      | 100                                                            | N/A    |
| 5.6.7                                                                                                                                                               | Dynamic stability test for units with castors <sup>a</sup>                                                                                    | 11.6                       | -                                     | -                                                              | N/A    |
| <sup>a</sup> The test shall be carried out in accordance with EN 16122:2012, 11.6 except that the stops shall be 12 mm high with square edges<br>N/A Not applicable |                                                                                                                                               |                            |                                       |                                                                |        |

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## Testing of Model: Shelf 780x200

### 6. Strength and Durability

**Table 5 – Strength and Durability Tests**

| Test no. | Test                                                                                                                                               | Reference<br>EN 16122:2012 | Loading                                                                               | Test severity       |                     | Result |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------|---------------------|---------------------|--------|
|          |                                                                                                                                                    |                            |                                                                                       | 1                   | 2                   |        |
| 6.1.1    | Strength of clothes rail supports                                                                                                                  | 6.3.1                      | Mass per unit length, kg/dm<br>Time                                                   | 4.0<br>1 h          | 4.0<br>1 h          | N/A    |
| 6.1.2    | Strength of coat hooks                                                                                                                             | 9.1                        | Force per hook, N<br>Cycles                                                           | 40<br>10            | 150<br>10           | N/A    |
| 6.1.3    | Durability of pivoted doors                                                                                                                        | 7.1.5                      | Cycles                                                                                | 40.000              | 80.000              | N/A    |
| 6.1.4    | Slam shut test of pivoted doors                                                                                                                    | 7.1.4                      | Mass, m <sub>2</sub> , kg<br>Cycles                                                   | 3<br>10             | 4<br>10             | N/A    |
| 6.1.5    | Slam shut/open of sliding doors and horizontal roll fronts                                                                                         | 7.2.2                      | Mass, m <sub>2</sub> , kg<br>Cycles                                                   | 4<br>10             | 6<br>10             | N/A    |
| 6.1.6    | Durability of sliding doors and horizontal roll fronts                                                                                             | 7.2.3                      | Cycles – sliding doors<br>Cycles – roll fronts                                        | 20.000<br>10.000    | 40.000<br>20.000    | N/A    |
| 6.1.7    | Durability of flaps                                                                                                                                | 7.3.2                      | Cycles                                                                                | 10.000              | 20.000              | N/A    |
| 6.1.8    | Durability of vertical roll fronts                                                                                                                 | 7.4.2                      | Cycles                                                                                | 10.000              | 20.000              | N/A    |
| 6.1.9    | Durability of extension elements                                                                                                                   | 7.5.3                      | Cycles – extension elements<br>Cycles – trays                                         | 40.000<br>20.000    | 80.000<br>40.000    | N/A    |
| 6.1.10   | Slam shut and open of extension elements <sup>a</sup>                                                                                              | 7.5.4                      | Velocity, m/s, at calibration points<br>Slam open 5 kg<br>Slam shut 35 kg<br>Factor K | 1.30<br>1.00<br>2.5 | 1.30<br>1.00<br>2.5 | N/A    |
| 6.1.11   | Displacement of extension element bottoms                                                                                                          | 7.5.5                      | Force, N<br>Cycles                                                                    | 60<br>10            | 70<br>10            | N/A    |
| 6.1.12   | Strength test for locking and latching mechanisms for extension elements                                                                           | 7.6.2                      | Force, N<br>Cycles                                                                    | 200<br>10           | 200<br>10           | N/A    |
| 6.1.13   | Strength test for locking and latching mechanisms for doors, flaps and roll fronts                                                                 | 7.6.3                      | Force, N<br>Cycles                                                                    | 200<br>10           | 200<br>10           | N/A    |
| 6.1.14   | Drop test                                                                                                                                          | 6.4.2                      | Drop height, mm                                                                       | -                   | 50                  | N/A    |
| 6.1.15   | Deflection of shelves                                                                                                                              | 6.1.4                      | Mass per unit area, kg/dm <sup>2</sup>                                                | 1.5                 | 2.0                 | Passed |
| 6.1.16   | Dislodgement of clothes rails                                                                                                                      | 6.3.2                      | Mass per unit length, kg/dm                                                           | 5                   | 5                   | N/A    |
| 6.1.17   | Drop test for trays                                                                                                                                | 8.3                        | Drop height, mm<br>Cycles                                                             | 350<br>10           | 700<br>10           | N/A    |
| 6.1.18   | Sustained load test for trays                                                                                                                      | 8.2                        | Kg/dm <sup>3</sup>                                                                    | 0.65                | 1.0                 | N/A    |
| 6.2      | Strength and durability requirements                                                                                                               |                            |                                                                                       |                     |                     |        |
|          | a) There are no fractures of any member, joint or component                                                                                        |                            |                                                                                       |                     |                     | Passed |
|          | b) There are no loosening of joints intended to be rigid                                                                                           |                            |                                                                                       |                     |                     | Passed |
|          | c) The storage unit fulfils the stability requirements (5.6)                                                                                       |                            |                                                                                       |                     |                     | N/A    |
|          | d) The storage unit fulfils its functions after removal of the test loads                                                                          |                            |                                                                                       |                     |                     | Passed |
|          | e) There shall be no deflection of shelves that exceeds 0.5% of the span of the shelf when tested in accordance with test no. 6.1.15 (see Table 5) |                            |                                                                                       |                     |                     | Passed |

<sup>a</sup> For strength and durability tests, only the slam shut test shall be performed. Table 4 contains requirements for slam open test  
N/A Not applicable

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## Testing of Model: Shelf 780x200

### Photo

