

Hyllteknik, AB
Box 132
342 22 ALVESTA
SWEDEN

Testing of rail hung shelf system

(4 appendices)

Summary

Rail hung shelf system meet the requirements for strength and security according to EN 16121:2013 and EN 14073:2004.

1 Introduction

On behalf of Hyllteknik AB, a rail hung shelf system has been tested at SP in accordance with EN 16121:2013 Non-domestic storage furniture – Requirements for safety, strength, durability and stability and EN 14073:2004 Office furniture - Storage furniture - Part 2: Safety requirements - Part 3: Test methods for the determination of stability and strength of the structure.

2 Test specimen

Clothes compartment shelf (Article nr. 69000)
Hat shelf (Article nr. 69200)
Shoe rack with tray (Article nr. 69100)
Seat bench (Article nr. 69400)
Wall rails (Article nr. 11000)

The test specimen was selected by the customer and arrived at 2014-03-12.

3 Test methods and test procedure

Standards and methods which is the basis for the tests:
EN 16121:2013 Non-domestic storage furniture – Requirements for safety, strength, durability and stability.
EN 16122:2012 Domestic and non-domestic storage furniture - Test methods for the determination of strength, durability and stability.
EN 14073:2004 Office furniture - Storage furniture - Part 2: Safety requirements.
EN 14073:2004 Office furniture - Storage furniture - Part 3: Test methods for the determination of stability and strength of the structure.

Tests were carried out in $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH. The test methods are explained in appendices 1 – 4.

The test was carried out 2014-04-07 – 2014-04-25.

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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4 Results

All parts of the rail hung shelf system fulfil the general requirements.

Table 1

1.	General requirements	EN 14073	EN 16121	Req. fulfilled
1.1	Accessible edges and corners shall be free from burrs and rounded or chamfered. There shall be no open ended tubes.	3.4	5.2	Passed
1.2	All moveable parts accessible during normal use shall have safety distances in any position during movement of ≤ 8 mm or ≥ 25 mm. This applies to any two elements moving relatively to each other, with the exception of doors, flaps and extension elements. The safety distance also applies to the distance between handles and other parts.	3.4	5.3	Passed
1.3	Adjustable parts shall be such as to prevent in advertent operation or release.	3.4	5.2	Passed
1.4	Vertically sliding roll fronts shall not close by themselves from any position higher than 200 mm measured from the closed position.	3.4	5.2	N/A
1.5	Extension elements shall have effective open stops. They shall resist being pulled out of the carcass once by a horizontal force of 200 N applied to the handle of the loaded extension element.	3.4	5.2	N/A
1.6	Load bearing parts of the storage unit shall not come loose unintentionally.	-	5.2	Passed
1.7	Safe height for vertically moving units shall be at least 100 mm from the floor.	-	5.2	N/A
1.8	Horizontal lids that are 1 000 mm or less from the floor and weigh 0,25 kg or more, that are hinged, shall be provided with lid-support mechanisms.	-	5.4	N/A
1.9	Any external, vertical glass component which is less than 900 mm above the floor, shall not break or become detached, when impacted once in accordance with EN 14072:2003, Clause 5, with a drop height of 70 mm.	-	5.5	N/A

5 Conclusion

At the end of the test the tested pieces did not exhibit any faults, fractures or other damage judged to affect its safety and functions when used in accordance with EN 16121:2013 and EN 14073:2004

The test results apply solely to the specimen tested.

SP Technical Research Institute of Sweden Wood Technology

Performed by

Examined by

Jonas Hafmar

Bengt-Åke Andersson

Appendices

1 – 4 Results

Appendix 1

Result of clothes compartment shelf, article nr. 69000

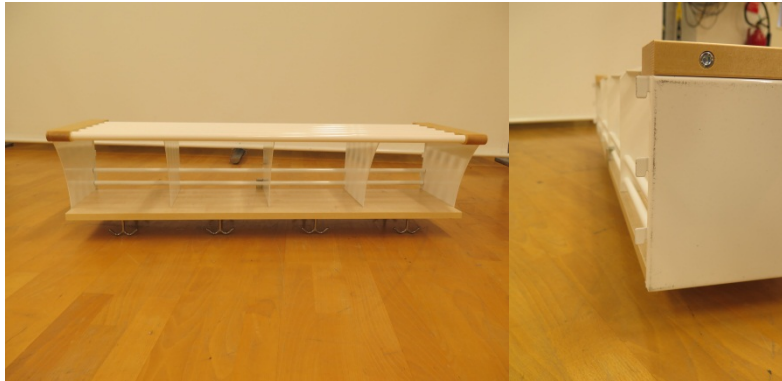


Figure 1 Clothes compartment shelf, article nr. 69000

Dimensions: W=1000 mm, D=322 mm, H=280 mm
 Frame: In metal and wood
 Coat hook: 8 hooks in metal
 Clothes rail: In metal, Ø 19 mm
 Shelf: 18 mm in laminated particleboard
 Other info: Attached to wall rail with 3 hooks in each end. Tested with wall rail, article nr. 11000. W=22 mm, D=15 mm, H=1790 mm

Table 1 Test of clothes compartment shelf, article nr. 69000

2.	Test	EN 14073	EN 16121	Cycles	Loading	Req. fulfilled
2.1	Pull out of shelves	5.3.1	5.7.1.2		50 % of unloaded shelf weight	Passed
2.2	Strength of shelf supports	5.3.2	5.7.1.4	10	2,5 kg	Passed
2.3	Dislodgment of screen and wall hanging cabinets and shelves	5.6.2	5.7.14		100 N	Passed
2.4	Strength of screen and wall attachment devices	5.6.4	5.7.1.13	1 week	According table 1 in EN 16121	Passed ¹
2.5	Shelf retention test – vertical downward	-	5.7.1.3		100 N	Passed
2.6	Strength of clothes rail supports	-	6.1.1	1 h	4 kg/dm	Passed
2.7	Strength of coat hooks	-	6.1.2	10	40 N	Passed
2.8	Dislodgement of clothes rails	-	6.1.16	5 kg/dm		Passed

¹ Total load = 96 kg

Appendix 2

Result of hat shelf, article nr. 69200

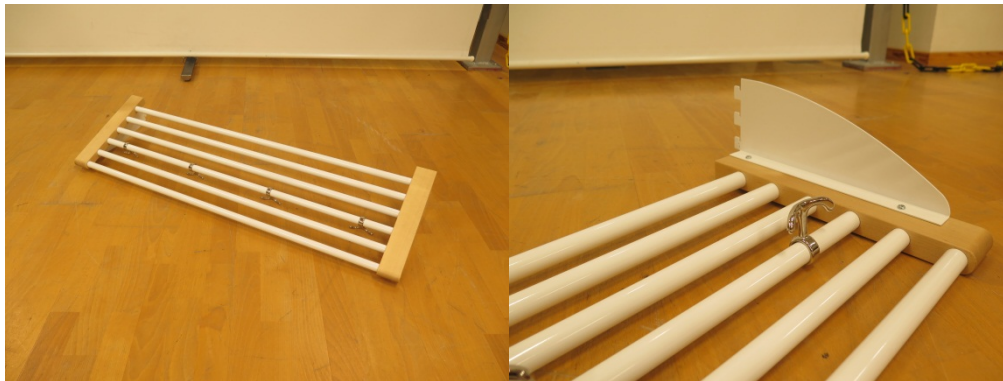


Figure 2 Hat shelf, article nr. 69200

Dimensions: W=1000 mm, D=322 mm, H=120 mm
 Frame: In metal and wood
 Coat hook: 4 hooks in metal
 Clothes rail: In metal, Ø 19 mm
 Other info: Attached to wall rail with 3 hooks in each end. Tested with wall rail, article nr. 11000. W=22 mm, D=15 mm, H=1790 mm

Table 2 Test of hat shelf, article nr. 69200

2.	Test	EN 14073	EN 16121	Cycles	Loading	Req. fulfilled
2.1	Pull out of shelves	5.3.1	5.7.1.2		50 % of unloaded shelf weight	Passed
2.2	Strength of shelf supports	5.3.2	5.7.1.4	10	2,5 kg	Passed
2.3	Dislodgment of screen and wall hanging cabinets and shelves	5.6.2	5.7.14		100 N	Passed
2.4	Strength of screen and wall attachment devices	5.6.4	5.7.1.13	1 week	According table 1 in EN 16121	Passed ²
2.5	Shelf retention test – vertical downward	-	5.7.1.3		100 N	Passed
2.6	Strength of clothes rail supports	-	6.1.1	1 h	4 kg/dm	Passed
2.7	Strength of coat hooks	-	6.1.2	10	40 N	Passed
2.8	Dislodgement of clothes rails	-	6.1.16	5 kg/dm		Passed

² Total load =87 kg

Appendix 3

Result of shoe rack with tray, article nr. 69100

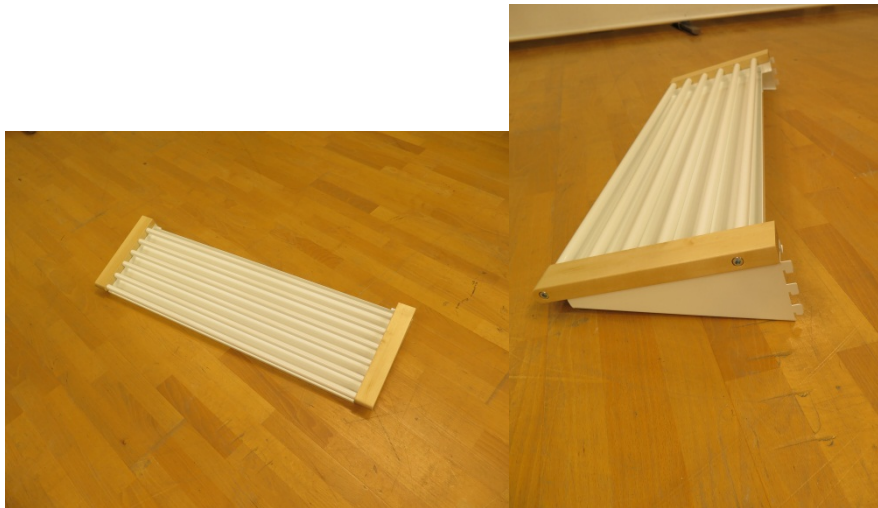


Figure 3 Shoe rack with tray, article nr. 69100

Dimensions: W=1000 mm, D=322 mm, H=120 mm
 Frame: In metal and wood
 Tray: In sheet metal
 Shelf rails: In metal, Ø 19 mm
 Other info: Attached to wall rail with 3 hooks in each end. Tested with wall rail, article nr. 11000. W=22 mm, D=15 mm, H=1790 mm

Table 3 Test of shoe rack with tray, article nr. 69100

2.	Test	EN 14073	EN 16121	Cycles	Loading	Req. fulfilled
2.1	Pull out of shelves	5.3.1	5.7.1.2		50 % of unloaded shelf weight	Passed
2.2	Strength of shelf supports	5.3.2	5.7.1.4	10	2,5 kg	Passed
2.3	Dislodgment of screen and wall hanging cabinets and shelves	5.6.2	5.7.14		100 N	Passed
2.4	Strength of screen and wall attachment devices	5.6.4	5.7.1.13	1 week	According table 1 in EN 16121	Passed
2.5	Shelf retention test – vertical downward	-	5.7.1.3		100 N	Passed
2.6	Drop test for trays	-	6.1.17	10	Drop height 350 mm	Passed
2.7	Sustained load test for trays	-	6.1.18	1 week	0,65 kg/dm ³	Passed

Appendix 4

Result of seat bench, article nr. 69400

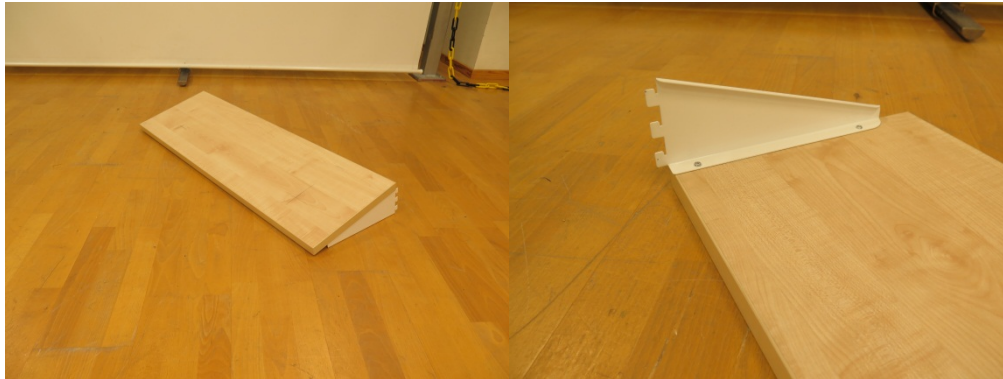


Figure 4 Seat bench, article nr. 69400

Dimensions: W=1000 mm, D=333 mm, H=120 mm
 Shelf: 28 mm laminated particle board
 Other info: Attached to wall rail with 3 hooks in each end. Tested with wall rail, article nr. 11000. W=22 mm, D=15 mm, H=1790 mm

Table 4 Test of seat bench, article nr. 69400

2.	Test	EN 14073	EN 16121	Cycles	Loading	Req. fulfilled
2.1	Pull out of shelves	5.3.1	5.7.1.2		50 % of unloaded shelf weight	Passed
2.2	Strength of shelf supports	5.3.2	5.7.1.4	10	2,5 kg	Passed
2.3	Dislodgment of screen and wall hanging cabinets and shelves	5.6.2	5.7.14		100 N	Passed
2.4	Strength of screen and wall attachment devices	5.6.4	5.7.1.13	1 week	According table 1 in EN 16121	Passed ³
2.5	Shelf retention test – vertical downward	-	5.7.1.3		100 N	Passed
2.6	Seat front edge static load test	EN 1728	6.5	10	1300 N	Passed

³ Total load =80 kg