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TEST REPORT No. BBC 20-235

09 09 2020

Vilnius

Determination of stability, strength, durability for
Tambour cabinet 1200x470x1200H mm

Customer	DROMEAS SA
Address of customer	Industrial Area of Serres, 62121 Serres, Greece
Application for test	No. A 20-111-4, date 27 08 2020
Date of receive test object	27 08 2020
Manufacturer name	DROMEAS SA
Indication of normative document	EN 14073-2:2004, EN 14073-3:2004, EN 14074:2004, EN 16121:2013+A1:2017, test severity 1, EN 16122:2012 including correction EN 16122:2012/AC:2015
Date of test	31 08 2020 (beginning) 09 09 2020 (end)

Conclusion

Tambour cabinet 1200x470x1200H mm **complies** EN 14073-2:2004 "Office furniture - Storage furniture - Part 2: Safety requirements" requirements and **complies** with the standard EN 16121:2013+A1:2017 (Non-domestic storage furniture - Requirements for safety, strength, durability and stability), **test severity 1** requirements.

Test object

Tambour cabinet 1200x470x1200H mm with two horizontal roll fronts and removable shelves. Top wall is made of 19 mm thickness finished plywood. Side and rear walls, shelves are made of 1,5 mm thickness sheet metal. Roll fronts and their sliding mechanisms are made of plastic. Shelves are fixed on four metal supports in V shape and are pressed on top with rubberized fasteners. There are four helical supports for height adjustment fixed at the bottom of storage. External dimensions of storage are: length 1205 mm, depth 470 mm, height 1195 mm.





Figure 1. *Tambour cabinet 1200x470x1200H mm*

Normative documents and test methods

EN 14073-2:2004 Office furniture - Storage furniture - Part 2: Safety requirements.

EN 14073-3:2004 Office furniture - Storage furniture - Part 3-Test methods for the determination of stability and strength of the structure.

EN 14074:2004 Office furniture – Tables and desks and storage furniture - Test methods for the determination of strength and durability of moving parts.



Unless otherwise stated, the following tolerances are applicable to the test equipment:

- forces: + 5 % of the nominal force;
- velocities: ± 5 % of the nominal velocity;
- masses: + 1 % of the nominal mass;
- dimensions: + 1 mm of the nominal dimension;
- angles: $\pm 2^\circ$ of the nominal angle.

The accuracy for the positioning of loading pads shall be ± 5 mm.

Tambour cabinet 1200x470x1200H mm was stored in the laboratory room before the tests were performing. The tests were carried out in normal indoor ambient conditions at the temperature of $(20 \pm 5)^\circ\text{C}$.

Test apparatuses

Apparatus 241MP certificate No. 22, apparatus 259P certificate No. 23.

Table 1. *Tambour cabinet 1200x470x1200H mm* test results
according to EN 14073-2:2004 requirements

Standard	Test and method, loads	Requirements	Test results	Pass/Fail or N/A*
EN 14073-2:2004 General safety requirements		EN 14073-2:2004		
3.4	Accessible edges and corners	shall be free from burrs and rounded or chamfered, there shall be no open ended tubes, 3.4	no remarks	pass
	All movable parts accessible during normal use	shall have safety distances in any position during movement of ≤ 8 mm or ≥ 25 mm, 3.4	no remarks	pass
	Adjustable parts	shall be such as to prevent inadvertent operation or release, 3.4		N/A
	Vertically sliding roll fronts	shall not close by themselves from any position higher than 200 mm measured from the closed position, 3.4		N/A
	Extension elements - horizontal force of 200 N	shall have effective open stops, shall resist being pulled out of the carcass, 3.4		N/*A
EN 14073-3:2004 Stability and strength		EN 14073-2:2004		
5.2	Strength of unit - horizontal force of 350 N, 10 times two stage cycle A,B followed by C,D	shall be no fracture, other damage or change of function that affects safety, shall not slide under the applied force, 3.5.2	no remarks	pass
5.3	Shelves (1015x395) mm	Height of the centre of gravity - 60 mm, total mass – 60,1 kg Safety tests are not applicable ¹		
5.3	Shelves (1015x365) mm	Height of the centre of gravity - 815 mm, total mass – 58,6 kg Safety tests are applicable		
5.3.1	Pull out of shelves, Force – 50 % of unloaded shelf weight, shelf weight – 3,04 kg - force of 15 N	shall be no fracture, other damage or change of function that affects safety, the shelf shall remain in the unit, 3.5.2	no remarks	pass
5.3.2	Strength of shelf supports - impact plate of 2,5 kg; - load of 55,6 kg; - 10 times		no remarks	pass
5.3	Shelves (1205x470) mm	Height of the centre of gravity - 1195 mm, total mass – 85kg Safety tests are applicable		
5.3.1	Pull out of shelves, Force – 50 % of unloaded shelf weight, shelf weight - force	shall be no fracture, other damage or change of function that affects safety, the shelf shall remain in the unit, 3.5.2		N/A



Table 1. (continued)

Standard	Test and method, loads	Requirements	Test results	Pass/Fail or N/A*
5.3.2	Strength of shelf supports - impact plate of 2,5 kg; - load of 85 kg; - 10 times		no remarks	pass
5.4	Strength of top surfaces (H ≤ 1000) mm - vertical force of 1000 N; - 10 times	shall be no fracture, other damage or change of function that affects safety, 3.5.2		N/A
5.5	Stability of free standing units			
5.5.1	Stability of the unloaded unit - all doors, extension elements and flaps open - vertical force of 50 N	shall be no fracture, other damage or change of function that affects safety, the unit shall not overturn, 3.5.2	no overturns	pass
5.5.2	Stability of the loaded unit - all doors, extension elements and flaps open - vertical force of 50 N		no overturns	pass
5.6	Screen and wall hanging units			
5.6.2	Dislodgment of screen and wall hanging cabinets and shelves - upwards force of 100 N	the unit shall remain attached as mounted and shall support the test load, 3.6.2		N/A
5.6.4	Strength of screen and wall attachment devices - total load - loading time one week	the unit shall remain attached as mounted and shall support the test load, 3.6.2		N/A
5.7	Floor standing unit attached to the building - horizontal outwards force of 200 N	shall be no fracture, other damage or change of function that affects safety, the unit shall remain attached to the building, 3.5.2		N/A
EN 14074:2004 Strength and durability of moving parts		EN 14073-2:2004		
6.2	Extension elements			
6.2.1	Strength of extension elements - vertical force of 250 N, - total mass	shall be no fracture, other damage or change of function that affects safety, 3.5.2		N/A
6.2.2	Durability of extension elements - load - 50 000 cycles			N/A
6.2.3	Slam open of extension elements - weight and string system - load in extensions element - mass of the hanging weight - 10 times	shall be no fracture, other damage or change of function that affects safety, the extension element shall not fall out of the unit, 3.5.2		N/A
6.2.4	Interlock test - horizontal force of 200 N - 10 times	shall be no fracture, other damage or change of function that affects safety, the extension element shall remain closed, 3.5.2		N/A



Table 1. (end)

Standard	Test and method, loads	Requirements	Test results	Pass/Fail or N/A*
6.3	Hinged or pivoted doors			
6.3.1	Vertical load on doors - load of 30 kg; - 10 times	shall be no fracture, other damage or change of function that affects safety, the door shall remain attached to the unit, 3.5.2		N/A
6.3.2	Horizontal static force on open door - horizontal force of 80 N - 10 times	shall be no fracture, other damage or change of function that affects safety, 3.5.2		N/A
6.3.3	Durability test on hinged and pivoted door - load of 2 kg; - 50 000 cycles			N/A
6.4	Sliding doors and horizontal roll fronts	Height of the centre of gravity - 605 mm Safety tests are not applicable ¹		
6.4.1	Durability test of sliding doors and horizontal roll fronts - roll fronts: 20 000 cycles	shall be no fracture, other damage or change of function that affects safety, 3.5.2	no remarks	pass
6.4.2	Slam shut/open of sliding doors and horizontal roll fronts - mass required to move door - 10 times			N/A
EN 14074:2004 Strength and durability of moving parts		EN 14073-2:2004		
6.5	Vertical roll fronts			
6.5.1	Durability of vertical roll fronts - 20 000 cycles	shall be no fracture, other damage or change of function that affects safety, 3.5.2		N/A
6.6	Flaps			
6.6.1	Strength of flaps - downward static force of 250 N; - 10 times	shall be no fracture, other damage or change of function that affects safety, 3.5.2		N/A
6.6.2	Durability of flaps - 20 000 cycles			N/A
6.7	Rolling test for mobile filing pedestals - 2 000 cycles			N/A
Remarks, comments				
¹ – safety tests are not applicable because component does not fall under 3.1 Principles of Safety Requirements of EN 14073-2:2004.				

*N/A: not applicable for this product design



Table 2. Tambour cabinet 1200x470x1200H mm test results
according EN 16121:2013+A1:2017 requirements

Clause, Standard	Test and method, loads	Requirements	Test results	Pass/Fail N/A or N/T*
5.2 General safety requirements, EN 16121:2013+A1:2017		EN 16121:2013+A1:2017		
5.2	All parts of the storage unit with which the user comes into contact, during intended use This requirement is met when:	shall be designed that physical injury and damage are avoided, 5.1		
	a) the accessible parts and all other edges	the accessible parts shall be rounded or chamfered, and all other edges accessible during intended use are free from burrs and sharp edges, 5.2	no remarks	pass
	b) feet of tubular components	shall be capped or otherwise closed, 5.2		N/A
	c) open ends of tubular components, accessible during intended use	shall be capped or otherwise closed 5.2	no remarks	pass
	Movable and adjustable parts	shall be designed so that injuries and inadvertent operation are avoided, 5.2	no remarks	pass
	All parts which are lubricated to assist sliding	shall be designed to protect users from lubricant stains when in normal use, 5.2		N/A
	All roll fronts and doors sliding vertically including those constructed from hinged elements	shall not move by themselves from any position higher than 200 mm measured from the closed position.		N/A
	Pinching points for feet	the safe height for vertically moving units shall be at least 100 mm from the floor, 5.2		N/A
	Extension elements - horizontal force 200 N	shall not become detached from the unit, 5.2		N/A
5.3 Shear and squeeze points, EN 16121:2013+A1:2017		EN 16121:2013+A1:2017		
5.3.1	Shear and squeeze points when setting up and folding	unless 5.3.2 or 5.3.3 are applicable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain. 5.3.1		N/A
5.3.2	Shear and squeeze points under influence of powered mechanism	with the exception of the operation of doors, flaps and extension elements, including their hardware, there shall be no shear and squeeze points created by parts of the storage unit operated by powered mechanisms, i.e. springs, gas lifts and motorised systems. 5.3.2		N/A
5.3.3	Shear and squeeze points during use	with the exception of the operation of doors, flaps and extension elements, including their hardware, there shall be no shear and squeeze points created by forces applied during normal use, 5.3.3	no remarks	pass



Table 2. (continued)

Clause, Standard	Test and method, loads	Requirements	Test results	Pass/Fail N/A or N/T*
5.4 Hinged horizontal lids, EN 16121:2013+A1:2017		EN 16121:2013+A1:2017		
5.4	Hinged horizontal lids	shall be provided with lid-support mechanisms to prevent sudden collapse or dropping of the lid, 5.4	no remarks	pass
5.5 Vertical glass components, EN 16121:2013+A1:2017		EN 16121:2013+A1:2017		
5.5	Vertical glass components	Any external, vertical glass component $>0,1 \text{ m}^2$ in area, where the smallest dimension is greater than or equal to 200 mm and any part of which is less than 900 mm above the floor, shall not break or become detached, 5.5		N/A
5.6 Stability, EN 16121:2013+A1:2017, table 3		EN 16121:2013+A1:2017		
5.6.1 (EN 16122:2012, 11.2.1)	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 Vertical force of 750 N	shall not overturn, 5.6		N/A
5.6.2 (EN 16122:2012, 11.2.2)	Doors, extension elements and flaps closed, all storage units unloaded - Units that are, or can be, adjusted to a height of more than 1 000 mm Vertical force – 350 N, Outward force – 50 N		no remarks	pass
5.6.3 (EN 16122:2012, 11.3)	All storage areas unloaded and all doors, extension elements and flaps open Horizontal force, which is just sufficient to open doors, extension elements and flaps			N/A
5.6.3 (EN 16122:2012, 11.4.1)	All storage areas unloaded and all doors, extension elements and flaps open		no remarks	pass
5.6.4 (EN 16122:2012, 11.4.2)	All storage areas unloaded with overturning load Vertical force 100 N			N/A
5.6.5 (EN 16122:2012, 11.4.3)	All storage areas loaded with overturning load, all storage units loaded Vertical force - 20 % of total mass of the unit but not greater than 300 N			N/A
5.6.6 (EN 16122:2012, 11.5)	Doors, extension elements and flaps closed and locked, all storage units loaded - Outward force 100 N		no remarks	pass
5.6.7 (EN 16122:2012, 11.6)	Dynamic stability test for units with castors, storage areas loaded			N/A



Table 1. (continued)

Clause, Standard	Test and method, loads	Requirements	Test results	Pass/Fail N/A or N/T*
5.7 Structural safety, EN 16121:2013+A1:2017, table 4		EN 16121:2013+A1:2017		
5.7.1.1 (EN 16122:2012, 6.2.2)	Static load test for tops and bottoms Force – 750 N, Cycles - 10	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2		N/A
Shelves (10515x365) mm		Height of the centre of gravity - 815 mm, total mass – 58,6 kg Shelf weight – 3,04 kg, Safety tests are applicable		
5.7.1.2 (EN 16122:2012, 6.1.2)	Shelf retention test – horizontal outward Force – 50 % of unloaded shelf weight, force – 15 N Shelf weight – 3,14 kg	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2	no remarks, shelf is fixed rigidly	pass
5.7.1.3 (EN 16122:2012, 6.1.3)	Shelf retention test – vertical downward Force – 100 N		no remarks	pass
5.7.1.4 (EN 16122:2012, 6.1.5)	Strength of shelf supports Cycles – 10 Mass per unit area – 0,65 kg/dm ² Load on shelf – 24,1 kg Steel impact plate No. 1 (1,7 kg)		no remarks	pass
Pivoted door				
5.7.1.5 (EN 16122:2012, 7.1.2)	Vertical load on pivoted doors Mass – 30 kg Cycles – 10	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2		N/A
5.7.1.6 (EN 16122:2012, 7.1.3)	Horizontal load on pivoted doors Force – 60 N Cycles – 10			N/A
Bottom-hinged flaps				
5.7.1.7 (EN 16122:2012, 7.3.1)	Strength of bottom-hinged flaps Force – 200 N Cycles – 10	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2		N/A
Extension elements				
5.7.1.8 (EN 16122:2012, 7.5.2)	Strength of extension elements Force – 200 N Cycles – 10	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2		N/A
5.7.1.9 (EN 16122:2012, 7.5.4)	Slam open of extension elements Weight and string system Factor K – 2,5 Mass in drawers – 0,2 kg/dm ³			N/A
5.7.1.10 (EN 16122:2012, 7.5.6)	Interlock test Force – 200 N Cycles - 10			N/A
5.7.1.11 (EN 16122:2012, 6.4.1)	Test for structure and underframes Force – 350 N Cycles – 10		no remarks	pass



Table 1. (continued)

Clause, Standard	Test and method, loads	Requirements	Test results	Pass/Fail N/A or N/T*
5.7.1.12 (EN 16122:2012, 6.4.3)	Test for unit with castors or wheels Cycles – 2 000	a) shall be no fractures of any member, joint or component, b) units attached to the structure of the building shall remain attached and carry the test load, c) the storage unit fulfils the stability requirements (5.6), 5.7.2		N/A
5.7.1.13 (EN 16122:2012, 10.1.3)	Overload test Mass per unit area – 2.5 kg/dm ²			N/A
5.7.1.14 (EN 16122:2012, 10.1.4)	Dislodgement test Force – 100 N			N/A
5.7.1.15 (EN 16122:2012, 10.2)	Units supported by the floor Force – 200 N			N/A
6 Strength and durability, EN 16121:2013+A1:2017, table 5, Test severity 1		EN 16121:2013+A1:2017		
6.1.1 (EN 16122:2012, 6.3.1)	Strength of clothes rail supports Mass per unit length – 4.0 kg/dm Time – 1h	a) there shall be no fractures of any member, joint or component, b) there shall be no loosening of joints intended to be rigid, c) the storage unit fulfils the stability requirements (5.6), d) the storage unit shall fulfil its functions after removal of the test loads, e) there shall be no deflection of shelves that exceeds 0,5 % of the span of the shelf,(6.1.15), 6.2		N/A
6.1.2 (EN 16122:2012, 9.1)	Strength of coat hooks Force per hook – 40 N Cycles – 10			N/A
6.1.3 (EN 16122:2012, 7.1.5)	Durability of pivoted doors Cycles – 40 000			N/A
6.1.4 (EN 16122:2012, 7.1.4)	Slam shut test of pivoted doors Mass m_2 – 3 kg Cycles – 10			N/A
6.1.5 (EN 16122:2012, 7.2.2)	Slam shut/open of sliding doors and horizontal roll fronts Mass m_2 – 4 kg Cycles – 10		no remarks	pass
6.1.6 (EN 16122:2012, 7.2.3)	Durability of sliding doors and horizontal roll fronts Sliding doors, cycles – 20 000 Roll fronts, cycles – 10 000		no remarks	pass
6.1.7 (EN 16122:2012, 7.3.2)	Durability of flaps Cycles – 10 000			N/A
6.1.8 (EN 16122:2012, 7.4.2)	Durability of vertical roll fronts Cycles – 10 000			N/A
6.1.9 (EN 16122:2012, 7.5.3)	Durability of extension elements Extension elements, cycles – 40 000 Trays, cycles – 20 000			N/A
6.1.10 (EN 16122:2012, 7.5.4)	Slam shut of extension elements Velocity, m/s at calibration points Slam open 5 kg – 1,30 m/s Slam shut 35 kg – 1,00 m/s Mass in drawers – 0,2 kg/dm ³			N/A
6.1.11 (EN 16122:2012, 7.5.5)	Displacement of extension element bottoms Force – 60 N Cycles – 10			N/A



Table 2. (end)

Clause, Standard	Test and method, loads	Requirements	Test results	Pass/Fail N/A or N/T*
6.1.12 (EN 16122:2012, 7.6.2)	Strength test for locking and latching mechanisms for extension elements Force – 200 N Cycles – 10	a) there shall be no fractures of any member, joint or component, b) there shall be no loosening of joints intended to be rigid, c) the storage unit fulfils the stability requirements (5.6), d) the storage unit shall fulfil its functions after removal of the test loads, e) there shall be no deflection of shelves that exceeds 0,5 % of the span of the shelf,(6.1.15), 6.2		N/A
6.1.13 (EN 16122:2012, 7.6.3)	Strength test for locking and latching mechanisms for doors, flaps and roll fronts Force – 200 N Cycles – 10		no remarks	pass
6.1.14 (EN 16122:2012, 6.4.2)	Drop test Drop height – 50 mm Not applicable for test severity 1			N/A
6.1.15 (EN 16122:2012, 6.1.4)	Deflection of shelves Mass per unit area – 1.5 kg/dm ² Load on shelf – 55,6 kg		no remarks	pass
6.1.16 (EN 16122:2012, 6.3.2)	Dislodgement of clothes rails Mass per unit length – 5 kg/dm			N/A
6.1.17 (EN 16122:2012, 8.3)	Drop test for trays Drop height – 350 mm Cycles – 10			N/A
6.1.18 (EN 16122:2012, 8.2)	Sustained load test for trays Mass – 0.65 kg/dm ³			N/A
7 Information for use, EN 16121:2013+A1:2017		EN 16121:2013+A1:2017		
7	Information for use	shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details: a) information regarding the intended use, with reference to the test severity where appropriate; b) assembly instructions, where applicable; c) instructions for the care and maintenance of the storage furniture, where applicable	Information for use was not provided	N/T
Remarks, comments				

* N/A: not applicable for this product design, N/T: not tested

Head of furniture testing center

Manvydas Mickus

Tests were carried by the engineer

Laimonas Staškūnas

The test results is relate only to the tested items.

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