



Test Report

Report No: 877705-13/14

Assignor: HAY A/S
Havnen 1
DK-8700 Horsens

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Jju/jha/hbs
Order no.: 877705
No. of appendices: 4

Subject: Model: Palissade Dining Bench

Type:	Bench				
Depth:	690 mm	Length:	1020 mm	Height:	800 mm
Weight:	19 kg				
Materials:	Powder coated metal				

Sampling: The test material was sampled by the client and received at the Danish Technological Institute 21-10-2019.

Method: **EN 581-1:2017** Outdoor furniture – Seating and tables for camping, domestic and contract use – Part 1: General safety requirements

EN 581-2:2015 Outdoor furniture – seating and tables for camping, domestic and contract use – Part 2: Mechanical safety requirements and test methods for seating

EN 16139:2013 Furniture - Strength, durability and safety - Requirements for non-domestic seating.

Clauses 4.1, 4.2.3, 4.3.3, 5, 6.1.1, 6.1.2, 6.1.3, 6.1.5, 6.1.6, 6.1.8, 6.1.9, 6.1.10, 6.1.12, 6.1.13, 6.1.14, 6.1.15, 6.1.16.

L2: Extreme use: E.g. in night-clubs, police stations, transport terminals, sport changing rooms, prisons, barracks (non-controlled areas).

Period: The testing was carried out from 24-10-2019 to 04-12-2019.

Result: Model Palissade Dining Bench fulfils the requirements in EN 581-1:2017, EN 581-2:2015 and EN 16139, L2.

Individual results appear from Appendices 1, 2 and 3.

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

Terms: Accredited testing was carried out in compliance with international requirements (EN/ISO/IEC 17025:2005) and in compliance with Danish Technological Institute's General Terms and Conditions regarding Commissioned Work accepted by Danish Technological Institute. The test results apply to the tested products only. This report may be quoted in extract only if the laboratory has granted its written consent.

Date/place: 05-12-2019, Danish Technological Institute, Wood and Biomaterials, Taastrup

Signature: Test responsible

Co-signatory



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EN 581-1:2017

Test	Safety Requirements	Result
5.1	General	Passed
5.2	Tubular components	Passed
5.3	Shear and squeeze points	
5.3.1	Shear and squeeze points when erecting, adjusting and folding away	N/A
5.3.2	Shear and squeeze points under the influence of powered mechanisms	N/A
5.3.3	Shear and squeeze points during use	Passed

Reference is made to annexes A + B in EN 581-1:2017.

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EN 581-2:2015 - Test sequences and test parameters for other than loungers

Table 2

	Test	Reference	Test parameters	Camping	Domestic	Contract	Result
7	Safety, strength and durability requirements for other seating						
7.1	General						
7.2	Stability, strength and durability						
7.2.1	Test sequence and parameters:						
1	Seat static and back static load test ^a	EN 1728:2012, 6.4	Specified seat load, N Load applied on seat not being tested, N Specified backrest load, N Minimum specified force F2 (back) N Cycles Additional cycle 30 min. ± 10 s	1100 750 - - 10 1	1600 750 410 360 10 1	2000 750 560 500 10 1	Passed
2	Seat front edge static load	EN 1728:2012, 6.5	Specified force, N Seat load, N Cycles	1100 750 10	1300 750 10	1300 750 10	Passed
3	Combined seat and back durability test ^a	EN 1728:2012, 6.17	Specified seat load, N Seat load, N Specified backrest load, N Minimum specified force F4 (back) N Cycles	1000 750 250 220 12500	1000 750 333 300 25000	1000 750 333 300 50000	Passed
4	Durability test on seating with a multi-position back rest	EN 1728:2012, 6.19	Seat load, N Specified force, N Cycles	750 190 5000	750 250 10000	750 250 20000	N/A
5	Arm rest static load test	EN 1728:2012, 6.11	Vertical specified force, N	-	700	900 ^b	N/A
6	Arm rest durability test	EN 1728:2012, 6.20	Specified force, N Cycles	400 5000	400 10000	400 30000	N/A
7	Leg forward static load test	EN 1728:2012, 6.15	Seat load, N Horizontal specified forces, N Minimum specified force, N Cycles	750 250 150 10	1000 300 175 10	1000 400 250 10	Passed

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	Test	Reference	Test parameters	Camping	Domestic	Contract	Result
8	Leg sideways static load test	EN 1728:2012, 6.16	Seat load, N Horizontal specified forces, N Minimum specified force, N Cycles	750 200 150 10	1000 300 175 10	1000 300 200 10	Passed
9	Seat impact test ^c	EN 1728:2012, 6.24	Drop height, mm Cycles	140 10	180 10	240 10	Passed
10	Footrest static test ^d	EN 1728:2012, 6.8	Vertical specified force, N Cycles	- 10	1000 10	1200 10	N/A
11	Forward stability ^{e f}	EN 1022					Passed
12	Rearward stability ^f	EN 1022					Passed
13	Sideways stability ^{e f}	EN 1022					Passed
7.2.2	Requirements The safety, strength and durability requirements are fulfilled after testing in accordance with Table 2 when: a) There are no fractures of any joint, member or component b) There is no loosening of joints intended to be rigid c) The seating fulfils its function after removal of the test loads d) The seating fulfils the safety requirements e) The product shall not overturn when subjected to the stability tests						Passed
	a If seat and back are of one piece of flexible material (e.g. textile), only the tests on seat shall be carried out. b If armrest is less than 15 mm wide, carry out test with 700 N for contract use c The application point shall be at least 100 mm from the front edge. This test shall not be carried out on seating with a seat height. >600 mm d This test is carried out only on seating with a seat height >700 mm e This test is not applicable for seating with a seat height <200 mm and a mass <5 kg. The height shall be determined by measuring from the floor to the upper seating area on the geometrical centre of the unloaded seat f In the case of seating, which might not fulfil the stability requirements before carrying out any tests, the applicable stability tests may be carried out before starting the sequence of tests specified in this table.						

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Loading according to Test severity L2.

Test	Test Method	Cycles	Load	Result
4.1 General	EN 16139, 4.1			Passed
4.2.2 Shear and squeeze points under influence of powered mechanisms	EN 16139, 4.2.2			N/A
4.2.3 Shear and squeeze points during use	EN 16139, 4.2.3			Passed
4.3.2 Swivelling chairs	EN 1022/EN 1335			N/A
4.3.3 Non-swivelling chairs	EN 1022			Passed
4.4 Rolling resistance of the unloaded chair	EN 16139, 4.4			N/A
5 Strength and durability requirements	EN 16139, 5			Passed
6.1.1 Seat static load and back static load test	EN 1728:2012, 6.4	10 10	Seat: 2000 N Back: 700 N	Passed
6.1.2 Seat front edge static load	EN 1728:2012, 6.5	10	Seat: 1600 N	Passed
6.1.3 Vertical load on back rests	EN 1728:2012, 6.6	10	Back: 900 N Seat: 1800 N	Passed
6.1.4 Foot rest static load test	EN 1728:2012, 6.8			N/A
6.1.4 Leg rest static load test	EN 1728:2012, 6.9			N/A
6.1.5 Arm rest sideways static load test	EN 1728:2012, 6.10	10	900 N	N/A
6.1.6 Arm rest downwards static load test	EN 1728:2012, 6.11	5	900 N	N/A
6.1.7 Vertical upwards static load on arm rests	EN 1728:2012, 6.13			N/A
6.1.8 Combined seat and back durability test	EN 1728:2012, 6.17	200000 200000	Seat: 1000 N Back: 300 N	Passed
6.1.9 Seat front edge durability test	EN 1728:2012, 6.18	100000	800 N	Passed
6.1.10 Arm rest durability test	EN 1728:2012, 6.20	60000	400 N	N/A
6.1.11 Foot rest durability test	EN 1728:2012, 6.21			N/A
6.1.12 Leg forward static load test	EN 1728:2012, 6.15	10	Edge: 620 N) (Seat: 1800 N)	Passed
6.1.13 Legs sideways static load test	EN 1728:2012, 6.16	10	Edge: 760 N) (Seat: 1800 N)	Passed
6.1.14 Seat impact test	EN 1728:2012, 6.24	10	300 mm	Passed
6.1.15 Back impact test	EN 1728:2012, 6.25	10	330 mm / 48°	Passed
6.1.16 Arm Impact Test	EN 1728:2012, 6.26	10	330 mm / 48°	N/A
6.1.17 Drop test (multiple seating)	EN 1728:2012, 6.27.1			Passed
6.1.18 Auxiliary writing surface static load test	EN 1728:2012, 6.14			N/A
6.1.19 Auxiliary writing surface durability test	EN 1728:2012, 6.22			N/A
7 Information for use	EN 16139, 7			N/A

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Photo

