HAY

Environment & material manual.

AAC

De Projectinrichter

www.deprojectinrichter.com
088 - 650 12 34

The About a Chair Collection (AAC) is designed in cooperation with HAY and Danish designer Hee Welling.
The AAC Collection is a series of furniture growing to be a large family; covering dining, conference, bar and lounge chairs and a table series.
The idea was to create a comfortable, beautiful and reasonable series of furniture based on an environmentally correct production.

This manual contains information on the different used parts, that combined make the AAC chair collection.
We have added the information part by part, to make an overview of the whole collection easier.
The manual includes information on test results made according to material, environment and strength.

HAY (BS Studio) is associated with the Danish clothes company Bestseller and manufactures strictly according to the Bestseller "Code of Conduct".

Rolf Hay, BS STUDIO/ HAY

Table of centents

AAC - Plywood frame.

Black stain - Item no: 4099203
Soap treated - Item no: 4099211

Can be combined with AAC arm shell.

Material:

Frame:	Glider:	Screws:
Beech plywood Oak veneer	EVA + Felt	Steel

Glue:
GIRAL Resin 2000 - formaldehyde urea/formaldehyde free glue.
GIRAL Hardener HL 330 - halogen free hardener.

Lacquer:
Lignal AC Clear Lacquer - SE 60154
Lignal Hardener - SR 60150
Hesse CN - Thinner RV 173

Soap:
Beckers Acroma - Natur EX960-2448

Test:

The supplier of the plywood frame is in the process of getting the official FSC certification on all of their production, incl. the AAC plywood frame.

Glue/ Lacquer is tested according to the EN-717/2 - emmision of formaldehyde less than 2,5mg/m3

EN 15373:2007 Furniture - Strength, durability and safety - Requirements for non-domestic seating. Loading according to Test severity 2.

AAC - Aluminium frame

Polish aluminium - Item no: 4099229
Black powder coated aluminium - Item no: 4099222
White powder coated aluminium - Item no: 4099221

Can be combined with AAC arm & AAC with out arm shell.

Material:

Legs / Morse plate	Screws / Axle / Washer:	Glider:
Diecasted aluminium	Steel	PA6 + Felt

Powder for coating:
Akzo Nobel.

Polish block:
Lime stone.

Test:

Raw aluminum:
Tested according to RoHS 2002/95/EC

Powder:
Tested according to RoHS 2002/95/EC

Setup frame:
VOC according to BIFMAx7.1:2011
Tested acording to Reach.

EN 15373:2007 Furniture - Strength, durability and safety - Requirements for non-domestic seating. Loading according to Test severity 2.

AAC - Steel frame.

Black powder coated - Item no: 4099252
White powder coated - Item no: 4099251
Chromed - Item no: 4099259

Black powder coated W/Arm - Item no:
White powder coated W/Arm- Item no:
Chromed - W/Arm - Item no:

Can be combined with AAC shell with out arm rest.

Material:

Frame:
Steel.

Glider / Stack Unit:
PA6

Screws:
Steel

ISO:

GB/T24001-2004 idt ISO14001:2004

AAC - Runner frame.

Black powder coated - Item no:
White powder coated - Item no:
Stainless steel - Item no:

Can be combined with AAC shell with out arm rest.

Material:

Frame:	Glider:	Screws:
Steel.	POM	Steel

ISO:

GB/T24001-2004 idt ISO14001:2004

AAC - Runner bar frame.

Black powder coated - Item no:
White powder coated - Item no:
Stainless steel - Item no:

Can be combined with AAC Bar shell.

Material:

Frame:	Glider:	Screws:
Steel.	POM	Steel

ISO:

GB/T24001-2004 idt ISO14001:2004

AAC - Plywood Bar frame.

Black stain - Item no:
Soap treated - Item no:

Can be combined with AAC Bar shell.

Material:

Frame:	Glider:	Screws:	Foot rest:
Beech plywood Oak veneer	EVA + Felt	Steel	Steel

Glue:
GIRAL Resin 2000 - formaldehyde urea/formaldehyde free glue.
GIRAL Hardener HL 330 - halogen free hardener.

Lacquer:
Lignal AC Clear Lacquer - SE 60154
Lignal Hardener - SR 60150
Hesse CN - Thinner RV 173

Soap:
Beckers Acroma - Natur EX960-2448

Test:

The supplier of the plywood frame is in the process of getting the official FSC certification on all of their production, incl. the AAC plywood frame.

Glue/ Lacquer is tested according to the EN-717/2 - emmision of formaldehyde less than 2,5mg/m3

AAC - Arm Shell.

Black - Item no: 4099412
White - Item no: 4099411
Upholstrey - Item no: 4099410
Can be combined with aluminium frame & Plywood frame.

Material:

Shell:	Fittings:
Poly Propolene	Zink - Alloy

Test:

Material:
Tested acording to Reach

Shell:
VOC according to BIFMAx7.1:2011

AAC - Shell with out arm.

Black - Item no: 4099402
White - Item no: 4099401
Upholstrey - Item no: 4099400
Can be combined with aluminium frame, steel frame & runner frame.

Material:

Shell:	Fittings:
Poly Propolene	Zink - Alloy

Test:

Material:
Tested acording to Reach

Shell:
VOC according to BIFMAx7.1:2011

AAC - Bar Shell.

Black - Item no:
White - Item no:
Upholstrey - Item no:
Can be combined with Runner bar frame & Plywood bar frame.

Material:

Shell:	Fittings:
Poly Propolene	Zink - Alloy

Test:

Material:
Tested acording to Reach

Shell:
VOC according to BIFMAx7.1:2011

AAC - Upholstery Pad.

Upholstrey - Item no:
Can be combined with AAC Arm Shell

Material:

Shell:
Poly Propolene

Test:

Material:
Tested acording to Reach

Shell:
VOC according to BIFMAx7.1:2011

AAC - Upholstrey.

Material:

Foam
Glue

Test:

Foam:
Polyether foam, 60H.
The foam is tested for harmful substances according to Oeko-Tex Standard 100.
The flammability test of 60H is according to FMVSS 302 (Federal Motor Vehicle Safety Standard No. 302: Flammability of Interior Materials).

Glue:
Water soluble glue: SABA 3801 Orange and Simalfa 308

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CONSUMER PRODUCTS SERVICES DIVISION

BS STUDIO SHANGHAI LIMITED

Technical Report: 66130730053 APR.02,2013
Date Received: MAR.14,2013
Modify date: MAR.25,2013

JASON SUN
BS STUDIO SHANGHAI LIMITED
15/F., UNION BUILDING NO. 100, YAN'AN RD (E),
SHANGHAI, CHINA

Sample Description:	ABOUT A CHAIR		
Manufacturer:	NA	PO No.:	NA
Buyer:	BS STUDIO	Style:	AAC 13
Country of Origin:	CHINA	Country of Destination:	EUROPE
Color:	WHITE SHELL + NATURAL OAK LEG	SKU No.:	NA
Protocol No.:	EN 15373	UPC Code:	NA
Previous Report No.:	NA		

TEST INFORMATION & EXECUTIVE SUMMARY

Evaluation To: For compliance with: -
EN 15373:2007 Furniture — Strength, durability and safety — Requirements for non-domestic seating (Test severity: 2)

Standards Employed: As specified in above standard(s) and incorporated with
EN 1022:2005, Domestic furniture – Seating – Determination of stability
EN 1335-1:2000, Office furniture – Office work chair – Part 1 : Dimensions – Determination of dimensions
EN 1335-3:2000, Office furniture – Office work chair – Part 3 : Safety test methods
EN 1728:2000, Domestic furniture - Seating - Test methods for the determination of strength and durability

Conclusions: The tested sample COMPLIED with the above standard: EN 15373:2007 (Test severity: 2)

REMARK:
The client specified the test method and requirement.

SHA/AH/H/IY

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Consumer Products Services (Shanghai)
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SUMMARY OF EXAMINATION

Introduction:

An examination was requested to ascertain compliance with the requirement(s) as detailed on page one of this report. The following clauses were considered applicable and our findings were as follows:

EN 15373:2007 Furniture — Strength, durability and safety — Requirements for non-domestic seating			
Clause	**Test item**	**Result**	***Comments**
5.1	General	PASS	--
5.2	Shear and squeeze points	--	--
5.2.1	Shear and squeeze points when setting up and folding	NA	See note II
5.2.2	Shear and squeeze points under the influence of powered mechanisms	NA	See note II
5.2.3	Shear and squeeze points during use	PASS	--
5.3	Stability (before test)	--	--
5.3.1	General	NA	See note II
5.3.2	Swivelling chairs	--	--
EN 1335-3 5.1	Front edge overbalancing	NA	See note II
EN 1335-3 5.2	Forward overbalancing	NA	See note II
EN 1335-3 5.3.1	Sideways overbalancing for chair without arm rests	NA	See note II
EN 1335-3 5.3.2	Sideways overbalancing for chair with arm rests	NA	See note II
EN 1335-1 6.18	Dimensions of underframe	NA	See note II
EN 1335-3 5.4.1	Rearwards overbalancing -Determination of the maximum offset of the back rest	NA	See note II
EN 1335-3 5.4.2	Rearwards overbalancing – Chair without back rest inclination	NA	See note II
EN 1335-3 5.4.3	Rearwards overbalancing – Chair with back rest inclination	NA	See note II
5.3.3	Non swivelling chairs	--	--
EN 1022 6.3 & 7.6	Forwards overturning for seating with footrest & Footrest test	NA	See note II
EN 1022 6.2	Forwards overbalancing, all seating	PASS	--
EN 1022 6.4	Sideways overbalancing, all seating without arms	PASS	--
EN 1022 6.5	Sideways overbalancing, all seating with arms	NA	See note II
EN 1022 6.6	Rearwards overbalancing, all seating with backs	PASS	--

EN 1022 7.3	Tilting chairs	NA	See note II
EN 1022 7.4	Rocking chairs	NA	See note II
EN 1022 7.5	Reclining chairs with footrest	NA	See note II
EN 1022 7.7	Reclining chairs without footrest	NA	See note II
5.4	Rolling resistance of the unloaded chair	NA	See note II

EN 15373:2007 Furniture — Strength, durability and safety — Requirements for non-domestic seating			
Clause	**Test item**	**Result**	***Comments**
EN 1728 6.2.1	Seat & back static load	PASS	--
EN 1728 6.2.2	Seat front static load	PASS	--
EN 1728 6.3.1	Additional static load for tilting chair, reclining chairs and loungers	NA	See note II
EN 1728 6.3.2	Additional static load test for fully reclining chairs	NA	See note II
Annex A.2	Vertical static load on back	PASS	--
EN 1728 6.4	Foot rail/rest static load	NA	See note II
EN 1728 6.4	Leg rest static load	NA	See note II
EN 1728 6.5	Arm sideways static load	NA	See note II
EN1728 6.5	Wing sideways static load	NA	See note II
EN 1728 6.6	Arm downwards static load	NA	See note II
Annex A.1.1	Vertical upwards static load on armrests	NA	See note II
Annex A.1.2	Stacking seating	NA	See note II
EN 1728 6.7	Seat & back fatigue	PASS	--
EN 1728 6.9.1	Additional seat & back fatigue for tilting chairs, loungers and intermediate reclining chairs	NA	See note II
EN 1728 6.9.2	Additional seat & back fatigue for fully reclining chairs	NA	See note II
EN 1728 6.8	Seat front edge fatigue	PASS	--
EN 1728 6.10	Arm fatigue test	NA	See note II
EN 1728 6.11	Leg rest fatigue	NA	See note II
Annex A.5	Foot rail fatigue test	NA	See note II
EN 1728 6.12	Leg forward static load	PASS	--
EN 1728 6.13	Leg sideways static load	PASS	--
EN 1728 6.14	Diagonal base load	NA	See note II

EN 1728 6.15	Seat impact test	PASS	--
EN 1728 6.16	Back impact test	PASS	--
EN 1728 6.17	Arm impact test	NA	See note II
EN 1728 6.18	Drop test (For multi-seat units)	NA	See note II
Annex A.3	Auxiliary writing surface static load test	NA	See note II
Annex A.4	Auxiliary writing surface fatigue test	NA	See note II
5.3	Stability (after test)	--	--
5.3.1	General	NA	See note II
5.3.2	Swivelling chairs	--	--
EN 1335-3 5.1	Front edge overbalancing	NA	See note II

EN 15373:2007 Furniture — Strength, durability and safety — Requirements for non-domestic seating			
Clause	**Test item**	**Result**	***Comments**
EN 1335-3 5.2	Forward overbalancing	NA	See note II
EN 1335-3 5.3.1	Sideways overbalancing for chair without arm rests	NA	See note II
EN 1335-3 5.3.2	Sideways overbalancing for chair with arm rests	NA	See note II
EN 1335-1 6.18	Dimensions of underfram	NA	See note II
EN 1335-3 5.4.1	Rearwards overbalancing -Determination of the maximum offset of the back rest	NA	See note II
EN 1335-3 5.4.2	Rearwards overbalancing – Chair without back rest inclination	NA	See note II
EN 1335-3 5.4.3	Rearwards overbalancing – Chair with back rest inclination	NA	See note II
5.3.3	Non swivelling chairs	--	--
EN 1022 6.3 & 7.6	Forwards overturning for seating with footrest & Footrest test	NA	See note II
EN 1022 6.2	Forwards overbalancing, all seating	PASS	--
EN 1022 6.4	Sideways overbalancing, all seating without arms	PASS	--
EN 1022 6.5	Sideways overbalancing, all seating with arms	NA	See note II
EN 1022 6.6	Rearwards overbalancing, all seating with backs	PASS	--
EN 1022 7.3	Tilting chairs	NA	See note II
EN 1022 7.4	Rocking chairs	NA	See note II
EN 1022 7.5	Reclining chairs with footrest	NA	See note II

EN 1022 7.7	Reclining chairs without footrest	NA	See note II
7	Information for use	NC	See note III

See Annex II: Comments

ANNEX I: SUBMISSION DESCRIPTION

Sample Description: ABOUT A CHAIR

Overall dimensions: 49cm x 50.5cmx 78cm (D x W x H)
Sample weight: 5.3 KG

ANNEX II: ADDITIONAL COMMENTS

I Sample was stored in indoor ambient condition 24 hours immediately prior to testing.

II NA = Not applicable.

III NC = Not conducted as per client request

BVCPS (Shanghai) contact information for this report

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BUREAU VERITAS
CONSUMER PRODUCTS SERVICE DIVISION (SHANGHAI)

IAN YANG
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SAMPLE RECEIVED

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Order no. 576796
Page 1 of 1
Appendices 2
Initials laha/prni/hbs

Test Report

Material:

Model: AAC22 / AAC23

Type:	Chair			Lab.no.:	576796-4
Length:	500 mm	Width:	590 mm	Height:	802 mm
Weight:	6,20 kg				
Materials:	Plastic shell Legs: Form pressed oak veneer				

Sampling: The test material was sampled by the client and received at the Danish Technological Institute 06-12-2013.

Method: EN 1022:2005 Domestic furniture - Seating - Determination of stability. 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 10-12-2013 to 06-01-2014.

Result: Model AAC22 / AAC23 fulfils the requirements in EN 1022: and EN 16139:2013.
Loading according to Test severity L2.
Individual results appear from Appendix 1.

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

Terms: The test has been performed according to the attached conditions, which are according to the guidelines laid down by DANAK (The Danish Accreditation). The testing is only valid for the tested specimen. The test report may only be extracted, if the laboratory has approved the extract.

Software: This report was generated by software version 2.21 of 2013-06-06.

06-01-2014, Danish Technological Institute, Wood Technology, Taastrup

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Test of model: AAC22 / AAC23
Lab. no.: 576796-4

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			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	Passed
6.1.6 Arm rest downwards static load test	EN 1728:2012, 6.11	10	900 N	Passed
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	Passed
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
Tilts at 350 N				
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°	Passed
6.1.17 Drop test (multiple seating)	EN 1728:2012, 6.27.1			N/A
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

Test of model: AAC22 / AAC23
Lab. no.: 576796-4

Photo

The general conditions pertaining to assignments accepted by Danish Technological Institute shall apply in full to the technical testing and calibration at Danish Technological Institute and to the completion of test reports and calibration certificates within the relevant field.

Danish Accreditation (DANAK)

DANAK was established in 1991 in pursuance of the Danish Act No. 394 of 13 June 1990 on the promotion of Trade and Industry.

The requirements to be met by accredited laboratories are laid down in the "Danish Agency for Trade and Industry's ("Erhvervsfremme Styrelsens") Statutory Order on accreditation of laboratories to perform testing etc. and GLP inspection. The statutory order refers to other documents, where the criteria for accreditation are specified further.

The standards DS/EN ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" and DS/EN 45002 "General criteria for the assessment of testing laboratories" describe fundamental criteria for accreditation. DANAK uses guidance documents to clarify the requirements in the standards, where this is considered to be necessary. These will mainly be drawn up by the "European co-operation of Accreditation (EA)" or the "International Laboratory Accreditation Co-operation (ILAC)" with the purpose of obtaining uniform criteria for accreditation. In addition, DANAK draws up Technical Regulations with specific requirements for accreditation that are not contained in the standards.

In order for a laboratory to be accredited it is, among other things, required:

- that the laboratory and its personnel are not subject to any commercial, financial or other pressures, which might influence their technical judgement
- that the laboratory operates a documented quality system
- that the laboratory has at its disposal all items of equipment, facilities and premises required for correct performance of the service that it is accredited to perform
- that the laboratory management and personnel have technical competence and practical experience in performing the service that they are accredited to perform
- that the laboratory has procedures for traceability and uncertainty calculations
- that accredited testing or calibration is performed in accordance with fully validated and documented methods
- that the laboratory keeps records, which contain sufficient information to permit repetition of the accredited test or calibration
- that the laboratory is subject to surveillance by DANAK on a regular basis
- that the laboratory shall take out an insurance, which covers liability in connection with the performance of accredited services

Reports carrying DANAK's logo are used, when reporting accredited services and show that these have been performed in accordance with the rules for accreditation.