



## Test Report

**Assignor** HOWE Europe a/s  
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**Report no.** 010\_Howe Europe.doc (Lab. no. 019909)

**Test material** Stackable chair model 40-4 with "fins"

**Sampling** The test material was sampled by the assignor and received at the Danish Technological Institute week 36-1999.

**Test method** ISO 7173:1989 Seating furniture. Strength and durability, test level 5, the following clauses: 7.1 – 7.2 – 7.5 – 7.6 – 7.7 – 7.8 – 7.10 – 7.11 – 7.13.

**Test** The testing was completed in the period week 36, 1999 till week 39-1999.

**Test result** Chair model 40-4 has been subjected to the above testing. According to the results stated in Appendix 1, the chair meets the requirements of ISO 7173:1989, test level 5.

**Storage** The sample will be stored 2 months from today, and will be destroyed, if nothing else has been agreed.

**Terms** The testing is only valid for the tested specimen.  
The test report may only be extracted, if the laboratory has approved the extract.

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**Date/place:** 28<sup>th</sup> September 1999, Danish Technological Institute, Furniture Laboratory, Taastrup.

**Signature:**

Poul Køhl

Co-reader

Ebbe Laug

## Testing of Stackable Chair Model 40-4 with "Fins" (Lab. no. 019909)

### Description of the Test Specimen

Stackable chair, frame made of steel tubes with a diameter of 11 mm (surface ni/cr.). The seat is made of 8 mm laminated plywood, the back is made of 10 mm laminated plywood.

### Standard

According to agreement we have tested the above mentioned chair according to Danish and International standard DS/ISO 7173:1989, the following clauses.

< 7.1 and 7.2	:	Static load, seat and back
< 7.5 and 7.6	:	Durability, seat and back
< 7.7	:	Static load of legs, forwards
< 7.8	:	Static load of legs, sideways
< 7.10	:	Seat impact test
< 7.11	:	Back impact test
< 7.13	:	Drop test

The test method is divided into 5 test levels with increasing severity as follows:

Test level 1	:	Very careful domestic use
Test level 2	:	Normal domestic use
Test level 3	:	Severe domestic use/light contract use
Test level 4	:	Normal contract use, e.g. offices
Test level 5	:	Severe contract use, e.g. airports

The chair has been tested up to test level 5.

## Testing

### Static load

10 times each of 10 seconds with the following loads:

7.1	Seat	:	2000 N (200 kp) vertically downward
7.2	Back	:	760 N (76 kp) Max. forces mean that if the chair tilts by less forces, this enters into force. The forces should minimum be 410 (41 kp). Actual force: 500 N (50 kp)
7.7.	Legs	:	760 N (76 kp), forwards against the edge of the seat
7.8	Legs	:	760 N (76 kp), sideways against the edge of the seat (the chair tilts at 70 kp).

### **Durability**

Seat and back are cyclically loaded 200,000 cycles.

7.5 Seat : 950 N (95 kp)

7.6 Back : 330 N (33 kp)

### **Seat Impact Test**

7.10 An impacter of 25 kgs falls freely to the seat 10 times from 300 mm height.

### **Back Impact Test**

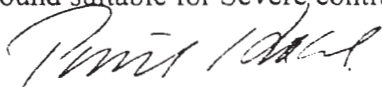
7.11 The upper edge of the back was exposed 10 times to strokes from a pendulum hung up impact hammer from a drop angle of 68E.

### **Drop Test – Stackable Chairs**

7.13 The chair was dropped 10 times from 900 mm above the floor on one foreleg and 10 times on the diagonal rear leg. When the chair is dropped, it has an angle of 10E in relation to the floor.

### **Test Results**

No damages nor signs of beginning damages were observed after finishing the above test programme. The chair meets the requirements of **ISO 7173:1989, level 5**, and is, therefore, found suitable for Severe contract use, e.g. airports.



Poul Køhl