



Mechanical Testing Laboratory

TEST REPORT  
No. 00001/ 23 /2014



Number of copies: 2  
Copy No. : 1  
Sheets: 18  
Sheet No.: 1 z 18

Date of issue: February 21<sup>th</sup> 2014

Applicant/Customer: **SEDASPORT s.r.o.**  
**Staromyjavská 1031/14**  
**907 01 Myjava**

Test item: **Chairs for ranked seating. Models KARAT, CURVE and NOVO.**

Registration number of the report of receipt of test item: **01 /23/2014**

Date of delivery of test item: **January 20<sup>th</sup> 2014**

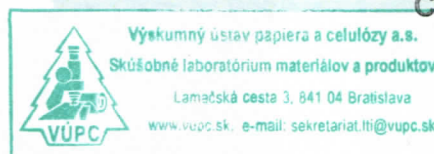
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## SCOPE

Range of tests was focused according to customer requirements: An assessment in accordance with **STN EN 12227: 2002. Tab. No. 1, Type of use-general.**

## NAME OF THE TESTS

### *- Safety requirements for the product*

The test procedure was performed in accordance with **STN EN 12227: 2002: Furniture. Ranked seating. Test methods and requirements for strength and durability.**

### 1. PURPOSE OF THE TEST

Verification of basic safety features, durability of construction and stability of the product.

### 2. TEST SAMPLE DELIVERY

The samples were delivered by the customer.



Fig.1: View of samples packed



Fig. 2: Samples assembled

### **3. DATE OF RECEIPT OF THE TEST ITEM**

Subject of the test was delivered by client on January 20<sup>th</sup> 2014. Report of receipt of test item: 01/23/2014 from January 20<sup>th</sup> 2014.

### **4. SUBJECTS OF THE TESTS**

Two chairs of model: Karat and two chairs of model: Curve and one piece of model: Novo were delivered for the testing. The chairs are designed for ranked seating for cinemas and theatres.

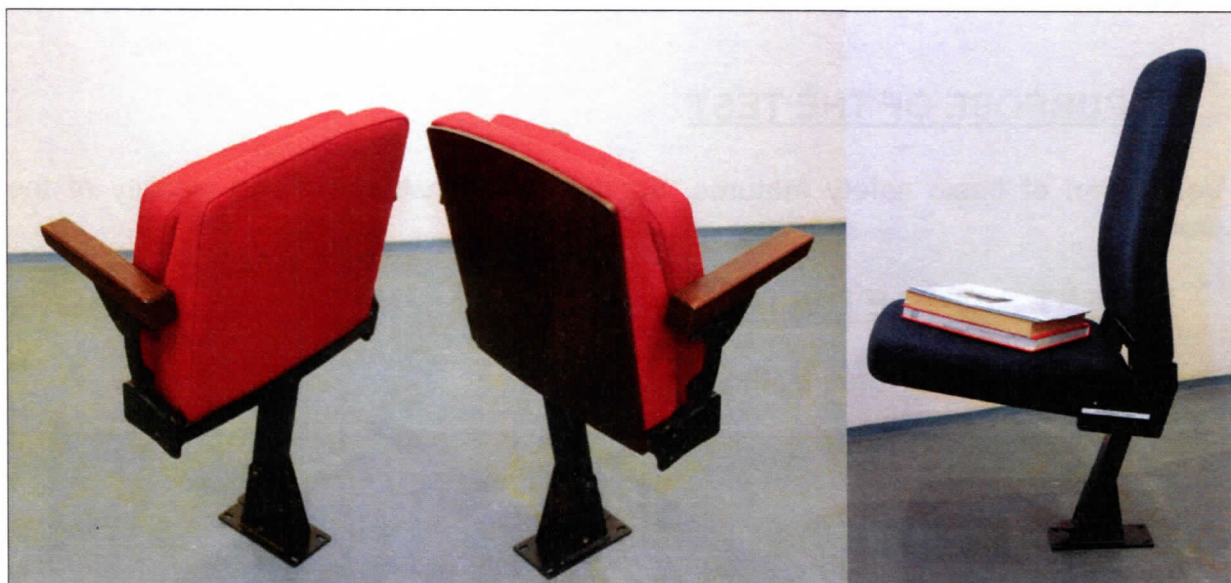


Fig.3: Design of chairs: Karat, Curve and Novo

Subjects of the testing were made of the following materials:

- Steel anchoring base, folding metal leg with armrest attachment
- The seat and backrest of the chair is made of molded plywood, polyurethane foam and upholstery fabrics
- A powder paint is used for metal parts finishing

## 5. ASSEMBLING

Chairs came individually packed. Chairs were divided into competent test equipment and anchored direct to the floor.

## 6. START AND END DATES OF TESTS

Start date: January 21<sup>th</sup> 2014  
End date: February 21<sup>th</sup> 2014

## 7. TEST PROCEDURE

The sample was tested in the Mechanical Testing Laboratory of accredited Laboratory of Materials and Products Testing, VÚPC, a.s., Bratislava, section Lignotesting in related laboratory conditions  $\phi = 55 \pm 5\%$  (relative humidity) and  $T = 23 \pm 2 \text{ }^\circ\text{C}$  (temperature). Certified and calibrated measuring instruments and test equipments – weights were used for the tests only.

### List of test equipments and measuring instruments:

List of test equipments used:

Name of test equipment	Registration metrological number
Universal test equipment for test of durability and stability	SZ – 2.05/02
Universal test equipment for testing of furniture	SZ – 2.05/05
Test equipment for mass determination	SZ – 2.05/03
Loading arm for stability test	PSZ – 2.05/02/04
Pendulum impact equipment	PSZ – 2.05/02/03

List of measuring instruments:

Name of instrument	Registration metrological number
Measuring tape	DL - 01/23
Weight	HM – 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, / 23
Set loading pad	PSZ - 21/23

### 7.1 Safety requirements for the product

Subject of the testing is assembled on a horizontal pad and its evaluation according STN EN 12727:2002 is provided.

### 7.2 Construction

The subject is placed on the floor. Overall checking of the completeness and compliance with security requirements for the construction of the chair for seating row are performed. All connections – welds are visually checked.

### 7.3 Edges, corners and tips

Tests of edges, corners and sharp tips are carried out visually on the test subject according to the requirements of standard STN EN 12727: 2002.

### 7.4 Weight of the chairs

Number of the test subject	Model	Weight
01/23/2014/ 1	<b>Novo</b>	16,90 kg
01/23/2014/ 2	<b>Karat</b>	18 kg
01/23/2014/ 4	<b>Curve</b>	16 kg

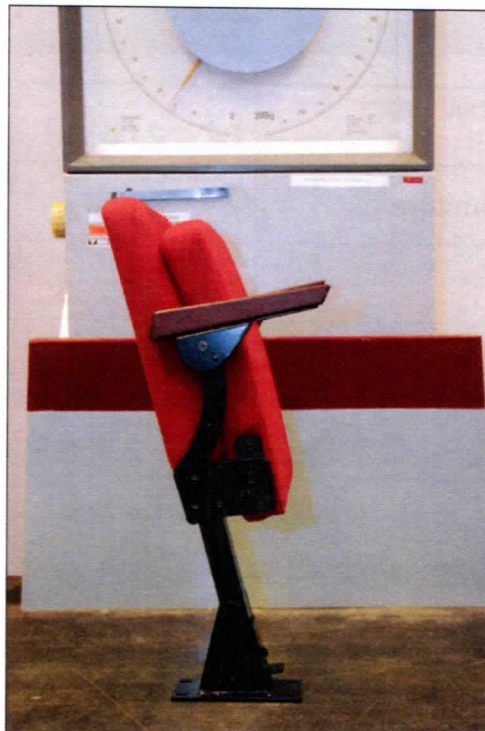


Fig.4 and 5: Mass determination of chairs (Curve and Novo)

**8. Tests results**

(Tab No.1 STN EN 12727: 2002)

**8.1 Loading tests**

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
1 Novo	6.3. Seat and Back Load Test	Seat Force N	2000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>
		Back Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
2 Karat	6.3. Seat and Back Load Test	Seat Force N	2000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>
		Back Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
4 Curve	6.3. Seat and Back Load Test	Seat Force N	2000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>
		Back Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

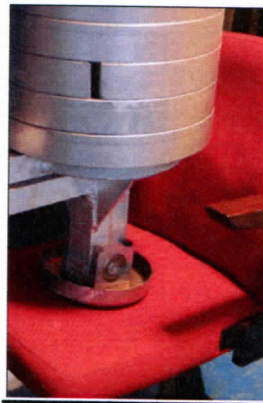


Fig 6: Static loading test of the seat

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>1 Novo</b>	<b>6.4</b> Horizontal forward static load to back	Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.4</b> Horizontal forward static load to back	Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	<b>6.4</b> Horizontal forward static load to back	Force N	760 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>1 Novo</b>	<b>6.5</b> Vertical static test on back	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.5</b> Vertical static test on back	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	<b>6.5</b> Vertical static test on back	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>1 Novo</b>	<b>6.6</b> Arm sideways static load test	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.6</b> Arm sideways static load test	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>



N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
4 Curve	6.6 Arm sideways static load test	Force N	900 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

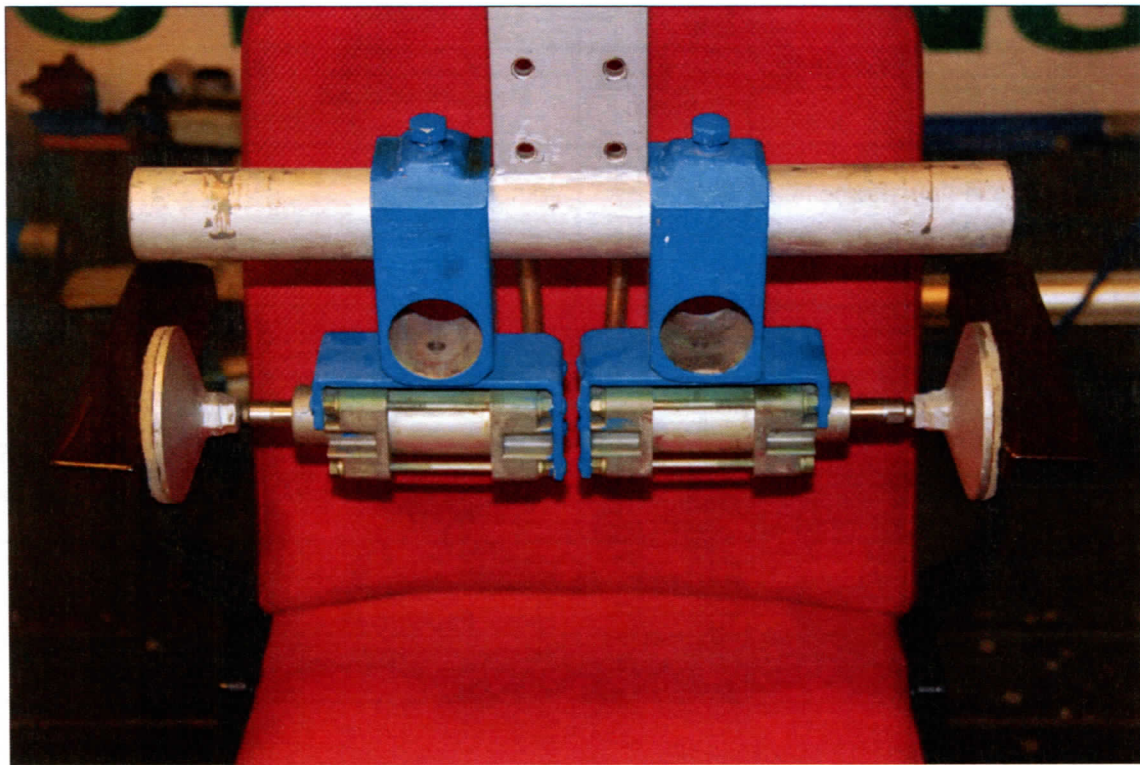


Fig. 7: Arm sideways static load test

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
1 Novo	6.7 Arm downwards static load test	Force N	1000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	6.7 Arm downwards static load test	Force N	1000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	6.7 Arm downwards static load test	Force N	1000 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>



Fig. 8: View on static loading by weight

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
4 Curve	6.8 Seat durability test (combined seat and back) Back durability test	Cycles Seat Force N	150000 cycles 950 N	Without damage, cracks, fractures or release	AS	<u>complied</u>
		Cycles Back Load N	150000 cycles 330 N	Without damage, cracks, fractures or release	AS	<u>complied</u>



Fig. 9: Combined test of seat and back

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
1 Novo	6.9 Seat front edge durability test	Cycles Load of the seat N	150000 cycles 950 N	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.9</b> Seat front edge durability test	Cycles Load of the seat N	150000 cycles 950 N	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>1 Novo</b>	<b>6.10</b> Horizontal forward durability test to back	Cycles Load of the back N	50000 cycles 330 N	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.10</b> Horizontal forward durability test to back	Cycles Load of the back N	50000 cycles 330 N	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	<b>6.10</b> Horizontal forward durability test to back	Cycles Load of the back N	50000 cycles 330 N	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
1 Novo	6.11 Seat impact test	Drop height, mm	300 mm 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
2 Karat	6.11 Seat impact test	Drop height, mm	300 mm 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
4 Curve	6.11 Seat impact test	Drop height, mm	300 mm 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
1 Novo	6.12 Back impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.12</b> Back impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	<b>6.12</b> Back impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>



Fig. 10: Back impact test

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>1 Novo</b>	<b>6.13</b> Arm impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.13</b> Arm impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>4 Curve</b>	<b>6.13</b> Arm impact test	Height, mm, angle, degrees	620 mm 68 10 x	Without damage, cracks, fractures or release	AS	<u>complied</u>



Fig. 11: Arm impact test

N° of the test subject	Test	Loading	3	Measured/Found	Type of the test	Evaluation
	Use		General			
<b>2 Karat</b>	<b>6.14</b> Tipping seat operation	cycles	50000	Without damage, cracks, fractures or release	AS	<u>complied</u>

The installation has tip-up seats, the operation from fully opened to fully closed was performed on this part according to Tab No.1, art. 6.14.

Tests according to art.15.6 and art.16.6 were not performed due no auxiliary surface.



Fig. 12: Test of functionality of folding mechanism



The tests of functionality of the folding mechanism of models NOVO, KARAT and CURVE were performed after performing all tests above. No changes of the functionality of the folding mechanism and the locking mechanism have been founded. There were no broken welds as well.



Fig. 13 and 14: Verifying the functionality of the mechanism after the testing

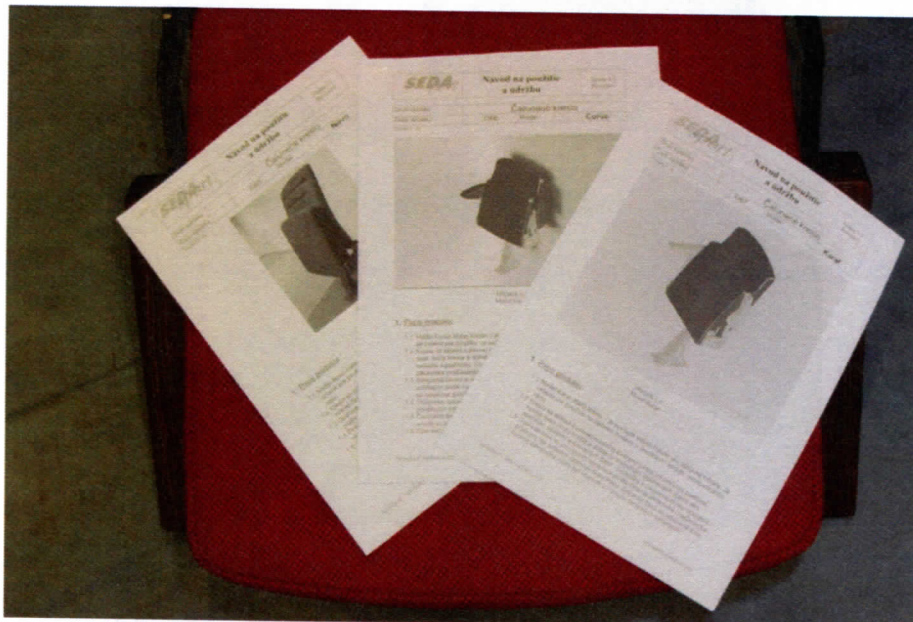


Fig. 15: Guidelines for the use of and the maintenance

Identification of the type of test:

**AS** – test in range of accreditation of testing laboratory of VÚPC a.s., section Lignotesting

**NS** – test out of range of accreditation performed on own testing laboratory of VÚPC a.s., section Lignotesting

**Note:** Uncertainties of instruments and measurement were taken into account when an evaluation comes into force.

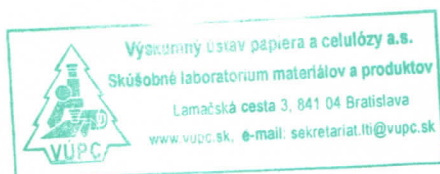
**Warning:** The test results do not replace any other documents required by the authorities of the state supervision in accordance with relevant regulations.

**Copy sent to:**

1. Customer
2. Laboratory of Materials and Products Testing Lignotesting

  
Ing. Vladimír Ihnát, PhD.

Head of Laboratory of Materials and Products Testing



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Test report No. 00001/23/2014