

**Zkušebna pasivní bezpečnosti**  
*Test laboratory of passive safety*

Zkušebna uznaná OSN pro zkoušení dětských zádržných systémů podle předpisu EHK OSN č. 44.  
*Test laboratory approved by UN to test the child restraint systems according to Regulation ECE No.44.*  
Strana/Page: 1/7

**Protokol číslo: 11/090**  
*Test report No:*

**Žadatel:** Piccollo, spol. s.r.o., Pernerova 35, CZ 186 00 Praha 8, Czech Republic  
*Applicant:*

**Výrobce:** CHICCO, Italy  
*Producer:*

**Předmět zkoušek:** Dětský zádržný systém skupin **II, III**.  
Informativní zkoušky podle předpisu EHK č. 44-04  
*Subject of tests: Child Restraint System, groups II, III.*  
*Informative testing according to the Regulation ECE No.44-04*

**Číslo homologace/ Approval No:** E4 04 443524

**Typ/Type:** KEY 2-3

**Vzorky předány na zkušebnu:** 16. 03. 2011  
*Samples were submitted for testing: March 16, 2011*

**Výsledek (\*):** Vyhovuje požadavkům předpisu EHK č. 44-04  
*Conclusion: It meets the requirements of the ECE Regulation No. 44-04*

**Datum vydání:** Praha, 21. 03. 2011  
*Issue date: Prague, March 21, 2011*

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*Šedivý*  
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*Authorized by:* vedoucí zkušebny pasivní bezpečnosti  
*Head of the Passive Safety Test Dept.*

**Protokol obsahuje:** 7 stran  
*This document contains: 7 pages*

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zaps. u Měst. soudu v Praze odd. B, vl. 1967  
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(22)

(\* ) Výsledky zkoušek uvedené v tomto protokolu se týkají jen zkoušených vzorků.  
*Test results relate only to the samples submitted for testing.*

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**INTRODUCTION**

According to the requirement of the company Piccolo, spol. s.r.o., the informative dynamic test of the CRS type "KEY 2-3" was performed (with dummy P6).

**DESCRIPTION OF THE CHILD RESTRAINT SYSTEM**

Category of the Child Restraint System (CRS): ..... universal  
 Groups: ..... II, III  
 CRS Class: ..... non-integral  
 Attachment means: ..... 3 point adult belt  
 Seat material: ..... plastic  
 Energy absorbing means: ..... plastic foam + fabric  
 Mass of the seat and its assembly: ..... 5,5 kg  
 Lettering: ..... English

<b>SCHEDULE OF TESTING CHILD RESTRAINT SYSTEM</b>		
The upper number in the cell signifies the page of the test report.		
Paragraph↓	Sample No. assigned by the test room →	
7.1.4. 8.1.3.	Dynamic test with the dummy P6	11/090-01  3, 5 - 7
Prepared by: Miloš Vaněk		Date: March 16, 2011, completed: March 21, 2011



**DYNAMIC TEST**of the **CHILD RESTRAINT SYSTEM** (impact by using sled deceleration)

**Producer of the CRS:** CHICCO  
**Producer's marking:** KEY 2-3  
**Approval number:** E4 04 443524  
**Mass groups of the CRS:** II – III (it concerns child's mass; the mass of complete CRS is 5,5 kg)  
**Category of the restraint:** universal  
**Class of the restraint:** non-integral  
**Used anchorages:** ABC + retractor

TESTING PARAMETERS	UNIT	REQUESTS	RESULTS, THEIR SEGMENTATION
Class of the CRS			non-integral
Tested mass group of the CRS			II - III
Mass of the used dummy	kg	An. 8, Ap.	22
The dummy simulates a child aged	year	1, § 3.1.	6
Numbers <sup>k/</sup> of tested samples			11/090-01
Serial numbers of tested samples			
Speed of the trolley before the impact	km/h	48 - 50	49,7
Stopping distance of the trolley	mm	600 - 700	644
Duration of the sled stopping <sup>1</sup>	ms	80 - 120	104,6
Stopping period with (- a ≥ 20 g*)	ms	15 - 63.7	11,6
Maximal deceleration of the trolley	g*	20 - 28	20,7
Maximal chest deceleration in the mutually perpendicular directions:	→ x	not defined	31,5
	y ↙		12,7
	↑ z <sup>b/</sup>		9,8
Vector sum of max. decelerations	g*	≤ 55 <sup>a/</sup>	32,0
Buckle releasing force before test	N	40 - 80	not applicable
Buckle releasing force after test <sup>h/</sup>	N	≤ 80	not applicable
Any sights <sup>e/</sup> of abdominal penetration ?		not	not
Any failure of the locked restraint ?		not	not

<sup>a/</sup> except during periods whose sum ≤ 3 ms

<sup>b/</sup> z is coincident with the direction of the seat back (trunk towards head)

<sup>e/</sup> see R 44/04, § 7.1.4.3.1. and annex 8, § 5.3.

<sup>h/</sup> belt tension 200 ± 2 N (see R 44/04, § 7.2.1.)

g\* is the gravitational acceleration (9.81 ms<sup>-2</sup>)

**Manikin displacement** →  
(demarcation lines see  
§ 7.1.4.4. of the R 44 ECE)  
Requirement: space ≥ 0

Free space for the head [mm] / time [ms]	Sample	direction x	direction z
	01	83/101	80/32

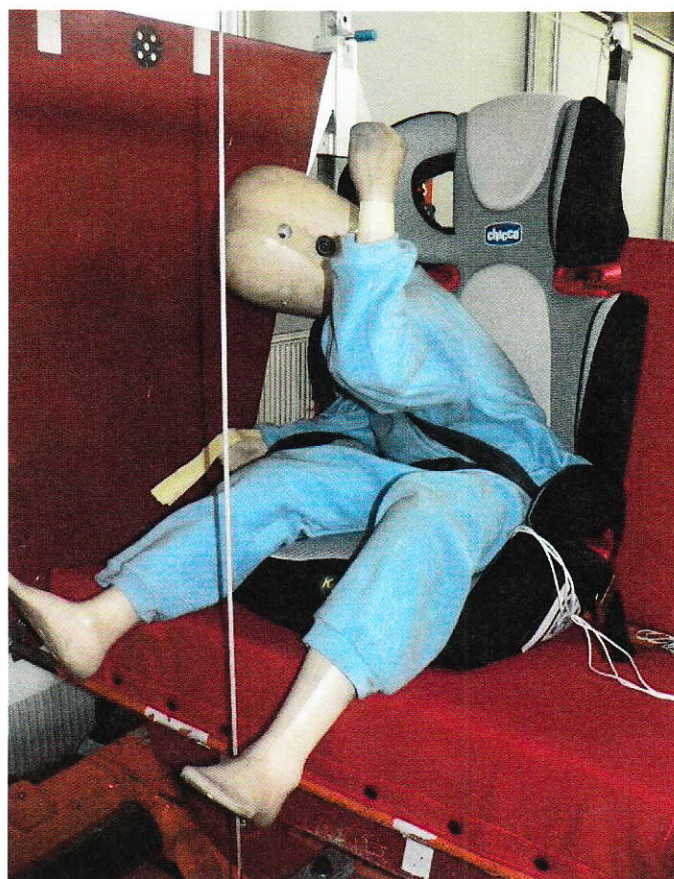
Allowed uncertainty <sup>c/</sup>  
of measuring is  
± 25 mm.  
Real uncertainty:  
5 mm for x,  
3 mm for y.

**THE RESULTS OF DYNAMIC TESTING CRS KEY 2-3 IS POSITIVE**

<sup>1</sup> The required time of deceleration record ≥ 300 ms (§ 9.1.) was not observed. Our experience substantiates that the force effects become insignificant after about 180 ms.

<sup>2</sup> According to R44-04 ECE, § 8.4.1.2. it is necessary to express the uncertainty of measuring the head biggest distances from the C<sub>r</sub> point. We used the method of the document EA 4/02 for it. On account of several tens of repeated measurements we determined the values of standard deviations: for the direction forwards 1.34 mm, and for the direction upwards 1.14 mm. With inclusion of other uncertainties (calibration of the scale, choosing the right snap from the videorecord, non-infinite proximity of neighbouring snaps) we have found out that the extended uncertainty (covering 95 % of the extent) is ± 5 mm for the direction forwards and ± 3 mm for the direction upwards. The distance from the inclined line is irrelevant.

PHOTOGRAPHIC DOCUMENTATION



DEKRA Automobil a.s. - Passive Safety Testing Center  
DYNAMIC TEST of the Child Restraint System acc. to ECE 44-04

Annex to the report No.: 11090  
Sample No : 01  
Producer of the sample : CHICCO  
Producers marking : KEY 2-3  
Approval number : E4-04443524  
Purpose of the test : Information test

1. Impact direction : Frontal
2. Restraint orientation : forward facing
3. Group of the restraint : II-III (15-36kg), dummy P6, 22kg
4. Category of the restraint: universal
5. Class of the restraint : non-integral
6. Used anchorages : ABC+retractor

Item	Parameters of the test	Unit	Requests	Reality
10.	Sled speed before the impact	km/h	48.0-50.0	49.7
11.	Stopping distance of the sled	mm	600-700	644
12.	Duration of the sled stopping	ms	80.0-120.0	104.6
13.	Stopping period with $-a > 20.0g$	ms	15.0-63.7	11.6
14.	Max.deceleration of the sled	g	20.0-28.0	20.7
15.	Avg.deceleration of the sled	g	10.0-19.6	15.1
20.	Max.chest decel.in direction X	g		31.5
21.	Max.chest decel.in direction Y	g		12.7
22.	Max.chest decel.in direction Z	g	<30.0	9.8
23.	Vector sum of chest decel.	g	<55.0	32.0
30.	Buckle releasing force	N	<80.0	n.m.
40.	Signs of abdominal penetration:			Invisible
50.	Restraint failure or breakage :			None

Notes: g is the gravitational acceleration [9.81 m/(s.s)]  
n.m.- no measurement  
Items 22,23: except during periods whose sum <3ms  
Item 30 : the pulling force of the strap is 200 N

Remarks: OK

free space for the head:x=83mm/101ms, z=80mm/32ms

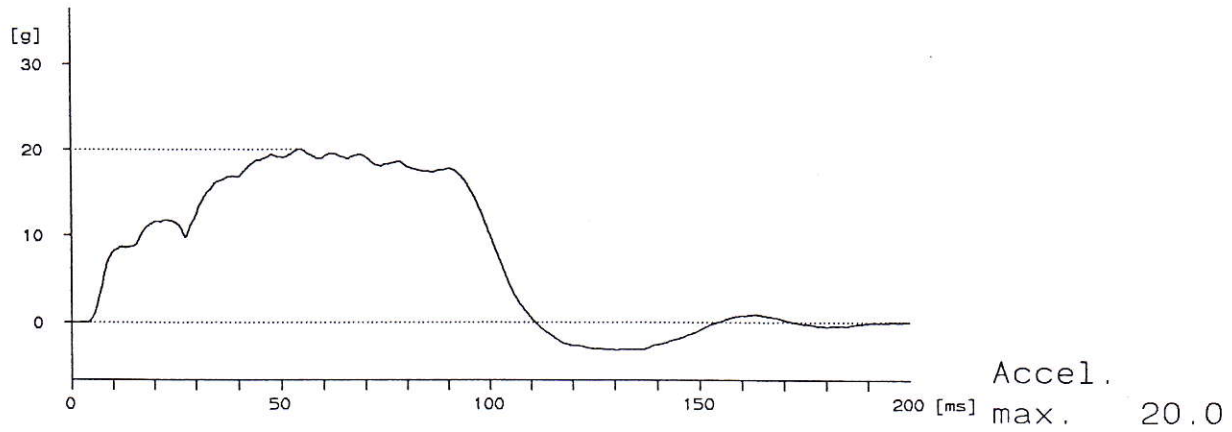
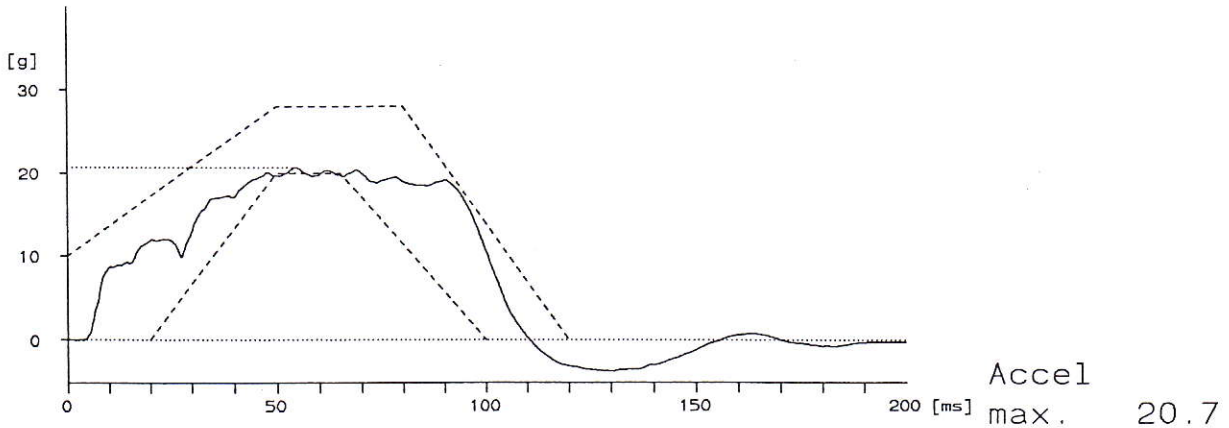
The test result is : POSITIVE

Date : March 16, 2011

Test performer : Karel Chlupac



.1109001/1.



1109001/2.

