



**C L E P A**  
*European Association of  
Automotive Suppliers*



# Rebound head excursion in R129

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On behalf of CLEPA members

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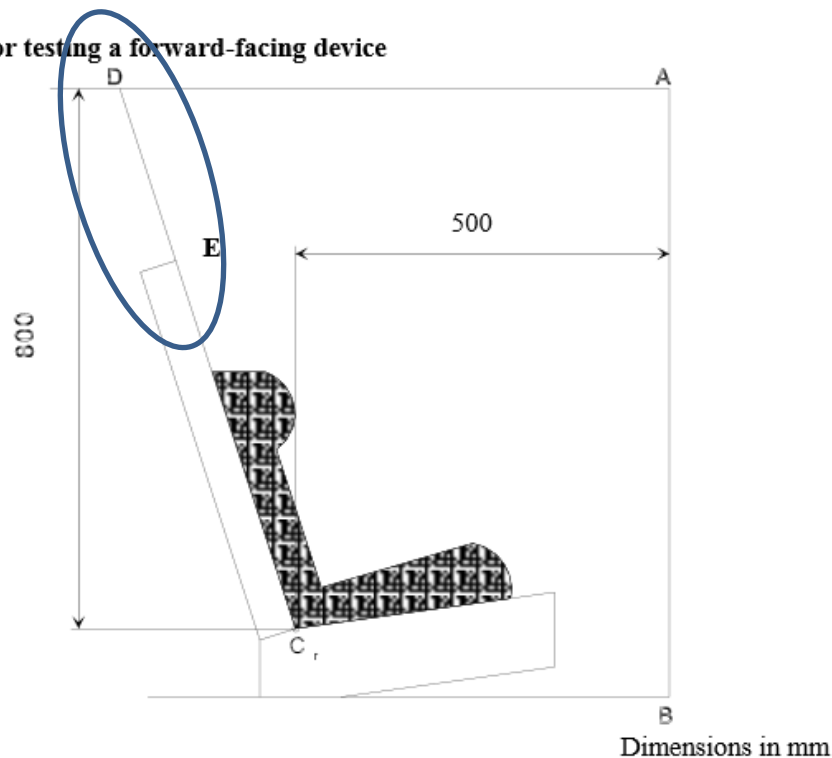
# UN R129 specifies a rebound excursion plane (DE) for FF CRS



## 6.6.4.4.1.1 Forward facing child restraint systems

Head excursion: No part of the head of the dummy shall pass beyond the planes BA, DA and DE as defined in Figure 1 below. This shall be judged up to 300 ms or the moment that the dummy has come to a definitive standstill whatever occurs first.

Figure 1  
Arrangement for testing a forward-facing device



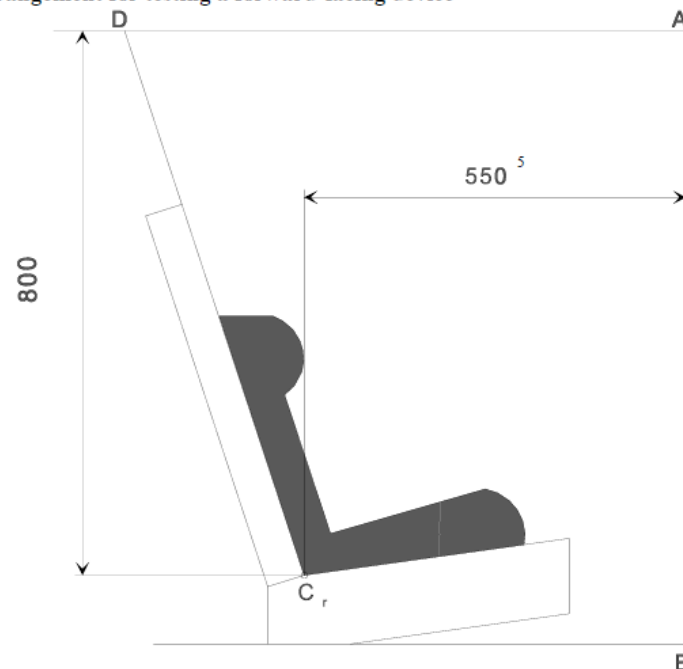
# This requirement was not part of UN R44



7.1.4.4.1.1 Forward facing child restraints: the head of the manikin shall not pass beyond the planes BA and DA as defined in Figure 1 below, except for booster seats when using the largest dummy P10 where the value in relation to DA plane is 840 mm

E/ECE/324/Rev.1/Add.43/Rev.3  
E/ECE/TRANS/505/Rev.1/Add.43/Rev.3

Figure 1  
Arrangement for testing a forward-facing device



Dimensions in mm

# The change was proposed by the expert from NL (CRS-12-03)



CRS-12-03

## 7.1.4.4. Manikin's head displacement

7.1.4.4.1. Child restraints of the "universal", "restricted" and "semi-universal" categories:

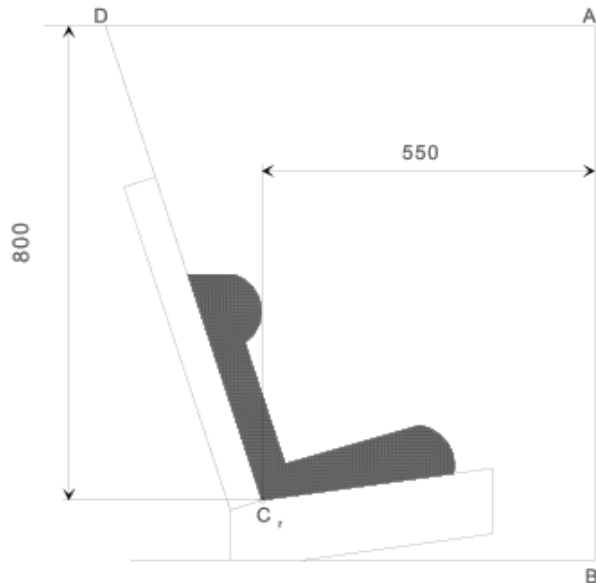
### 7.1.4.4.1.1. Forward facing child restraints:

Head excursion: no part of the head of the manikin shall not pass beyond the planes BA, and DA and DE as defined in Figure 1 below. This shall be judged up to 300 ms or the moment that the manikin has come to a definitive standstill whatever occurs first.

*Remark: as is the case with rearward facing child restraints, the point E being the top of the seat back of the R.44 seat should also be defined here.*

*Furthermore, because it concerns ISOFIX child restraints, the forward excursion limit shall have to be changed from 550 mm to 500 mm.*

*Finally, the 800 mm vertical limit shall have to be connected to only testing with Q0, Q1, Q1.5, Q3 and Q6, whilst for testing with Q10 a vertical limit of 840 mm will be used.*



Dimensions in mm

Figure 1

- The minutes of CRS-12 do not refer to any discussion of this issue
- The requirement will be difficult to achieve with larger dummies
- **What real-world safety problem does it address?**
- **Is the Q-Series reliable in rebound?**

# Phase 2 raises vertical head excursion for Q10 (DA plane) but DE plane remains



## 6.6.4.4.1.1 Forward facing **enhanced** child restraint systems

Head excursion: No part of the head of the dummy shall pass beyond the planes BA, DA and DE as defined in Figure 1 **below except for booster seats and booster cushions when using the largest dummy Q10 where the value in relation to the DA plane is 840 mm and the value in relation to the BA plane is 550 mm.** This shall be judged up to 300 ms or the moment that the dummy has come to a definitive standstill whatever occurs first.

- We propose to limit all head excursion requirements to the forward motion of the dummy
  - DE plane removed
  - Vertical head excursion applies in loading phase only
  - Proposal covers all dummies in FF CRS

# Proposed amendment



## 6.6.4.4.1.1

Forward facing enhanced child restraint systems

Head excursion: No part of the head of the dummy shall pass beyond the planes BA, **and** DA ~~and DE~~ as defined in Figure 1 below except for booster seats and booster cushions when using the largest dummy Q10 where the value in relation to the DA plane is 840 mm and the value in relation to the BA plane is 550 mm. **This shall be judged up to the point of peak forward horizontal head excursion** ~~up to 300 ms or the moment that the dummy has come to a definitive standstill—whatever occurs first.~~

# Any Questions?

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