

**Explanatory presentation to .../GRSP/2023/38 –  
Clarification of test bench vs. bodyshell testing**  
*Submitted by the experts from CLEPA*

*74<sup>th</sup> session of GRSP, 04 – 08<sup>th</sup> December 2023*

# AIMS OF THE PROPOSAL

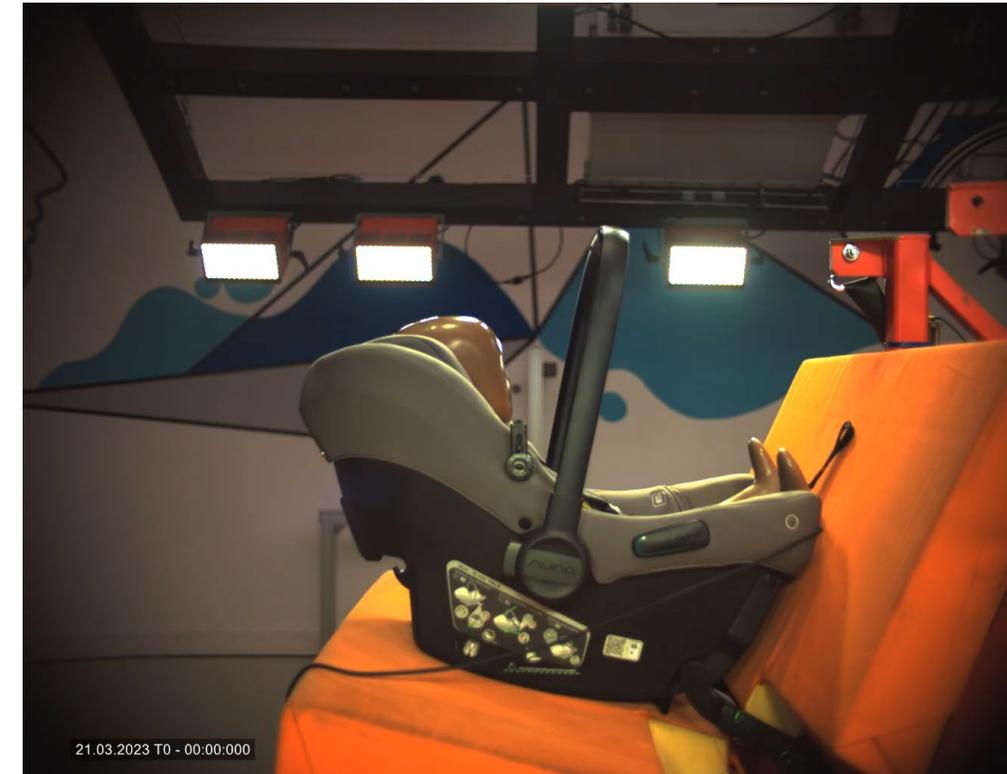


- To reinstate the reference to **one belt route** for installation of boosters (para. 6.1.3.4.)
  - One belt route requirement clearly established by para. 3.2.2.
  - Accidentally deleted in para. 6.1.3.4. by Supplement 3 to 03 series
  - Correction to para. 6.1.3.4. needed for consistency
- To clarify when the dynamic test must be carried out on a **vehicle body shell vs. the test bench**
  - Builds on GRSP-74-42

# PRINCIPLES (UN R44 → UN R129)



- An anti-rotation device is a prerequisite for testing ISOFIX CRS on the **R129 test bench**
  - No anti-rotation device = bodyshell testing
- **Bodyshell tests** can be reduced if car models “*do not differ greatly in ...*”
  - Envisages reduced tests for shared platforms and interiors



# EVIDENCE-BASE FOR ANTI-ROTATION PRINCIPLES



## LOADINGS TO CHILDREN IN CARS IN FRONTAL COLLISIONS – EXPERIENCE FROM ECE-R44 TEST BENCH RESULTS COMPARED WITH CAR RESULTS

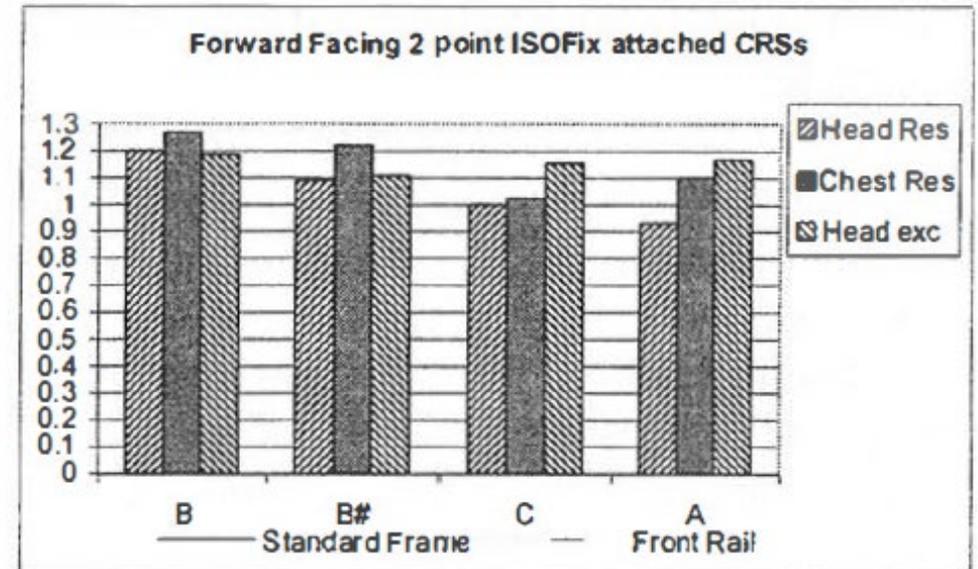
Le Claire, M; Lowne R.  
Transport Research Laboratory (United Kingdom)

Langwieder, K; Hummel, Th.  
GDV Institute for Vehicle Safety (Germany)

### CONCLUSIONS

1. Where vehicles and ISOFix CRS have been developed together, 2-point ISOFix CRS can give good performance and the R44 test bench is likely to give a worst case condition.
2. Where a 2-point ISOFix CRS design has been optimised on the R44 test bench and is then used in vehicles for which only the location and strength of the ISOFix anchorages have been assessed, the performance in vehicles can be very variable and worse than the R44 test bench.
3. Use of a supplementary anti-rotation device can remove the sensitivity to cushion characteristics and could be one method of providing universal approval for an ISOFix CRS.

Paper presented at IRCOBI 2000 & at  
UN GRSP Informal Group on ISOFIX



# indicates the use of adult L&D as asymmetric top tether

Figure 7 - Forward Facing 2 point ISOFix attached CRSs veh/R44

# HISTORICAL GRSP DECISIONS



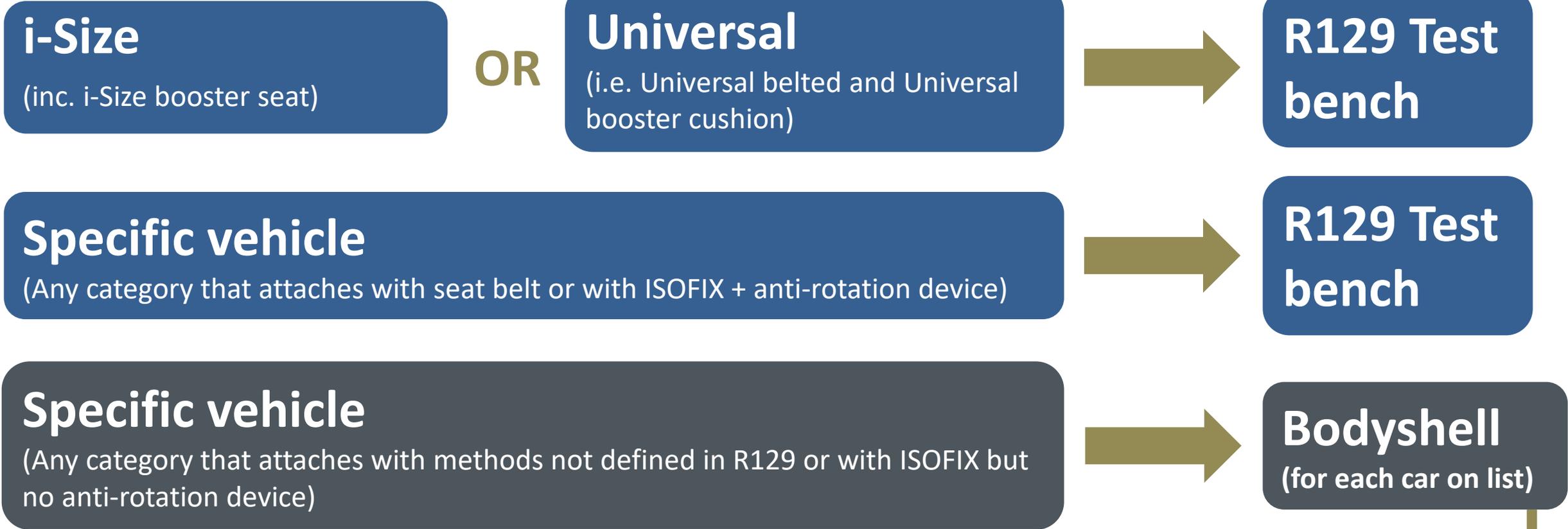
## GRSP-28: UK (and others) emphasised the need for anti-rotation devices

20. The expert from the United Kingdom stated that it was dangerous to introduce the two lower anchorages only as a first step. He regretted that, after having positive test results showing the need for a third anchorage, GRSP have chosen a non-universal solution. He expressed his concerns about the child ejection and expressed his fear that the adopted approach could give to ISOFIX a bad reputation.

## GRSP-30: Principles for ISOFIX testing are established in UN Regulations

39. He explained to GRSP that Child Restraint Systems (CRS) had been divided into five sizes in addition to the current mass classification of Regulation No. 44. He said that the group proposed as an Universal ISOFIX CRS the integral forward facing CRS including two ISOFIX attachment and one top tether attachment, and that the tool test to approve this ISOFIX CRS should be the Regulation No. 44 bench equipped with top tether attachment. He informed GRSP that the Semi-universal ISOFIX CRS would be any CRS with two ISOFIX attachments and any other feature to avoid rotation, and that the test tool to approve it would be the Regulation No. 44 bench.

# SUMMARY OF THE PROPOSAL



No. of car models tested can be reduced – but testing at simple extremes not allowed