

CRS-23-03



# CRS internal measurement checking gauge

Annex 19

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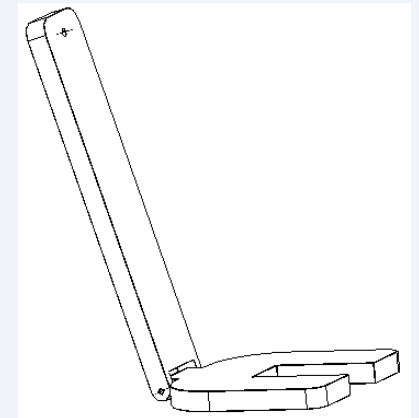
Safety Research  
Department



# EN1888 device



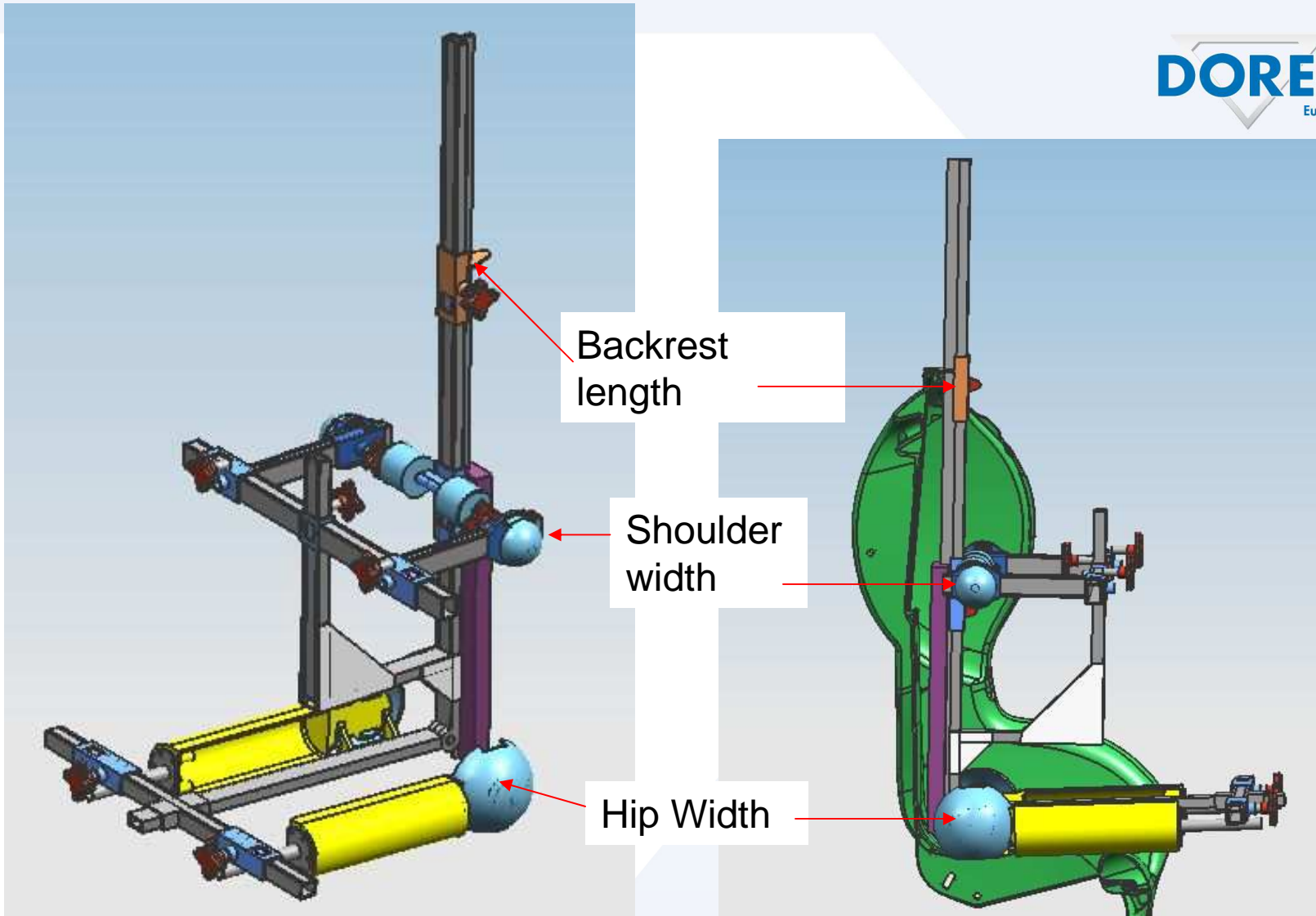
- Origin not clear, EN1888 secretary does not know. Not intended to represent <1 yr old children.
- Mass is 9 kg, so too heavy for children with a stature smaller than ~600 mm.
- Width is 200mm, so too wide for children with a stature smaller than ~750 mm
- Chosen to design our own device.



# Input



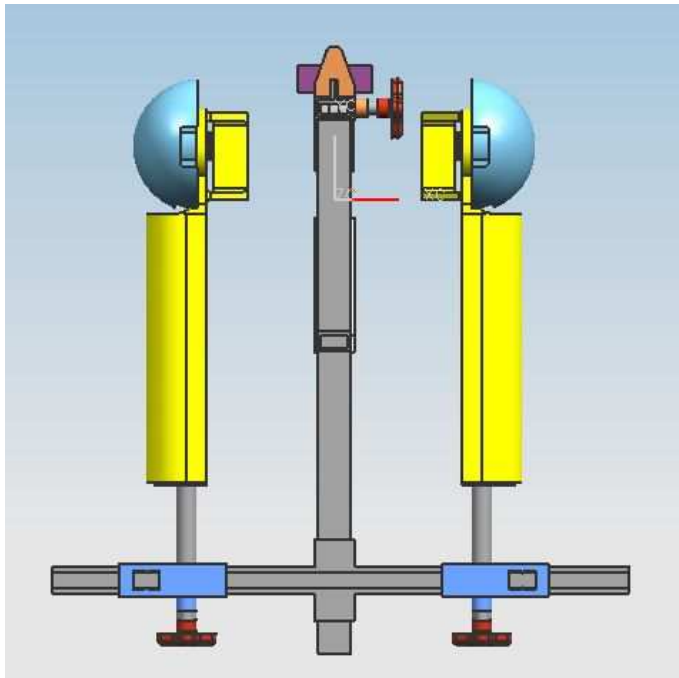
- Where possible, body parts were made adjustable to represent children with a stature from 400-1500 mm
- Where not possible, Q1,5 was used as reference (e.g. hip joint location)
  - Upr arm ball diameter 44 mm
  - Shoulder rotation point from backrest 50 mm
  - Hip joint height from seating plane 36 mm
  - Hip joint distance from backrest 60 mm
  - Buttock radius 45 mm
  - Thigh thickness 60 mm
- 50 N spring force in hip and shoulder cups.



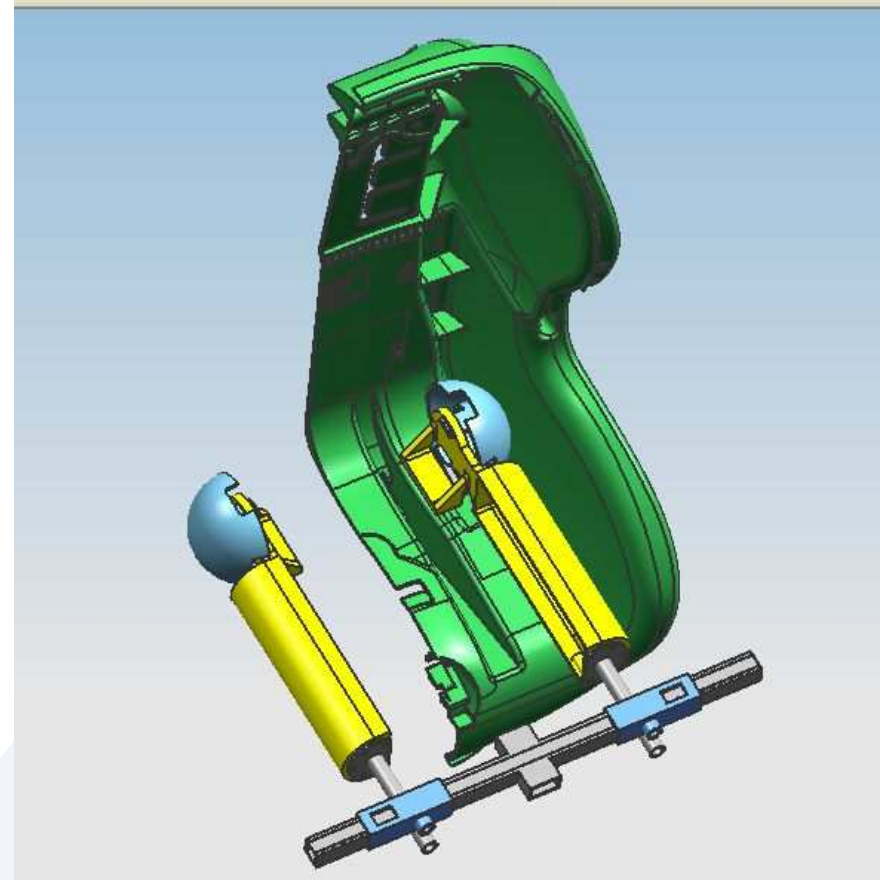
# Hip width device



Top view



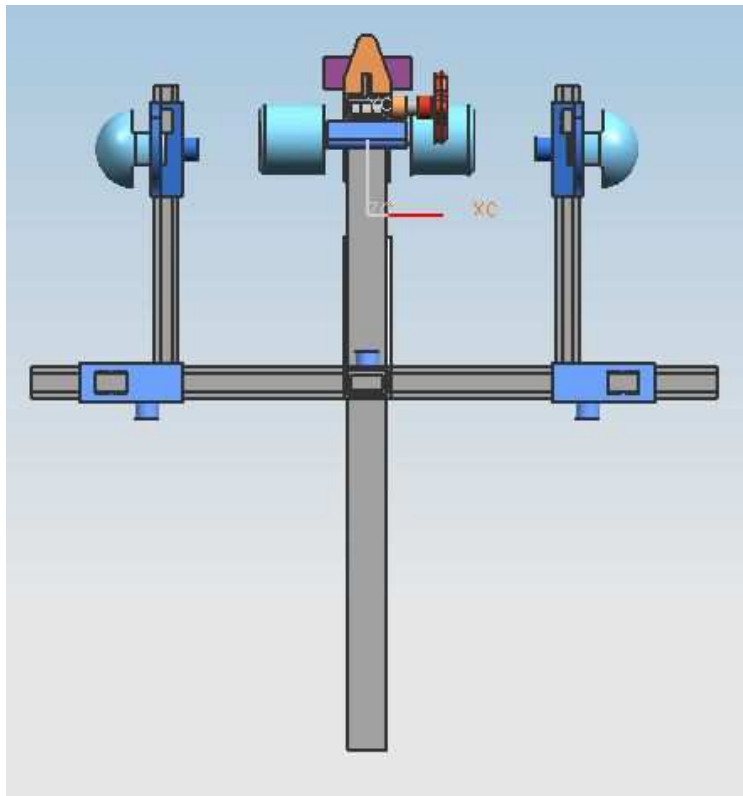
Isometric view with shell



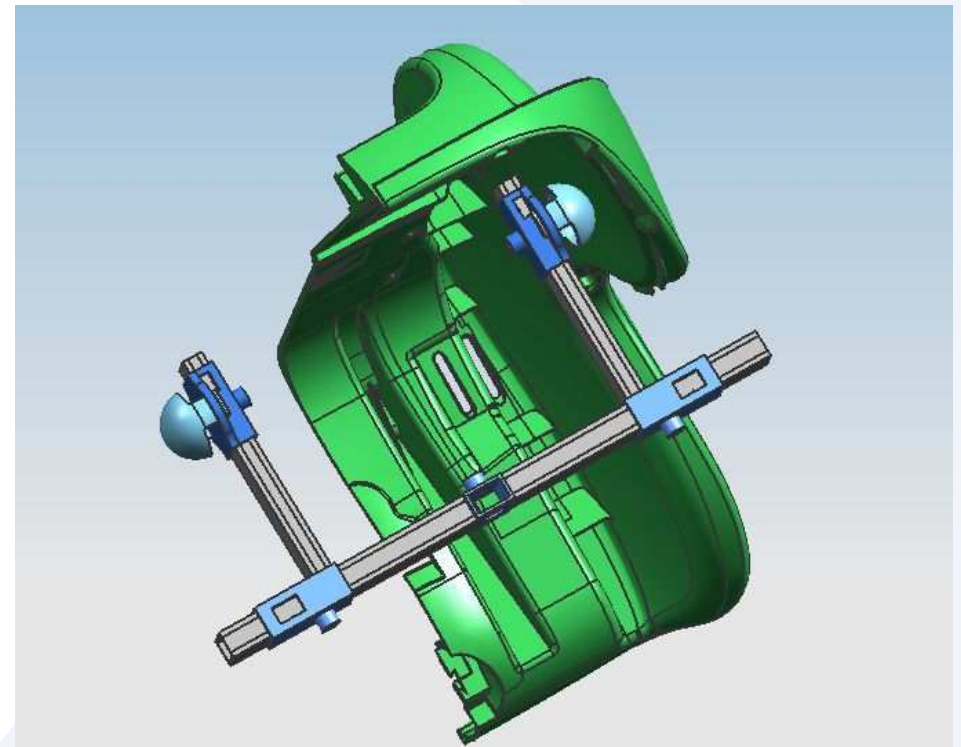
# Shoulder width device



Top view

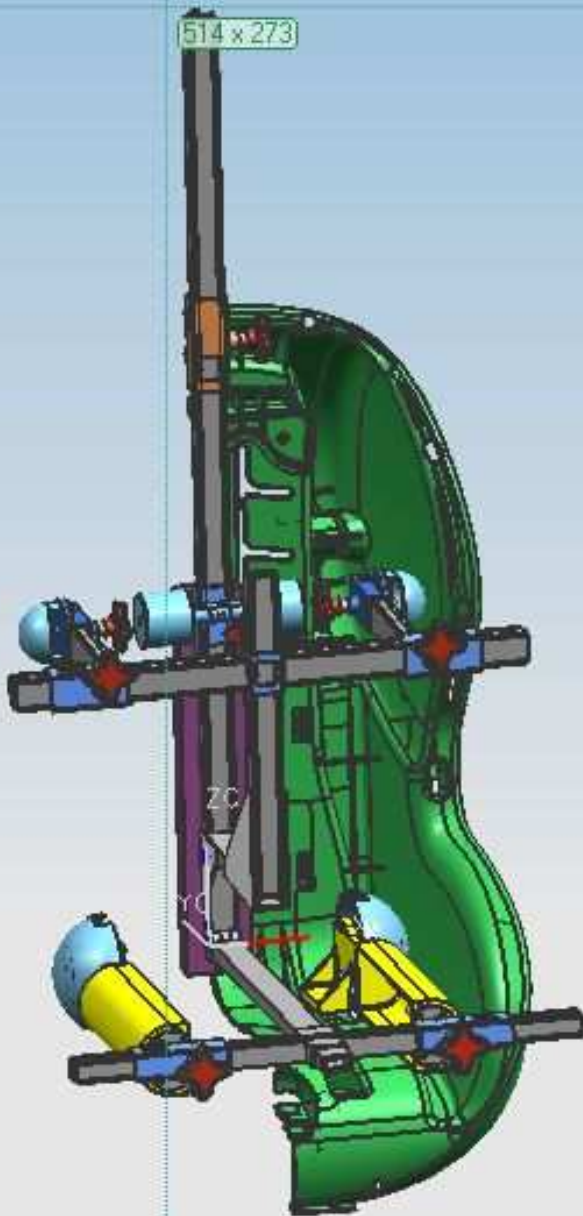


Isometric view with shell





# Isometric view with half CRS shell



# Ranges

## 400-1500 mm (0 to ~12yrs)



Backrest height	400-800 mm
Shoulder breadth	120-400 mm
Hip breadth	150-400 mm
Shoulder height	250-550 mm





# Open issues



- Naked dummy; 5 mm compensation for clothing proposes (all directions).
- Verification of shoulder height is OK; belt length check is not required.
- Non sizable measures, might need adjustment for Q0 sized child
  - Leg diameter
  - Shoulder backrest distance
  - Diameter of hip + shoulder cups

Is it really a problem?  
Legs are only a few mm's too thick, shoulder a few mm's too far from backrest. to represent a newborn.

Hip + shoulder  $\emptyset$  are equal in Q dummies (realistic?)