

**Euro NCAP 16 km/h test with the SET 50F and
50M in Saab 9-3 and Audi A4 seat**

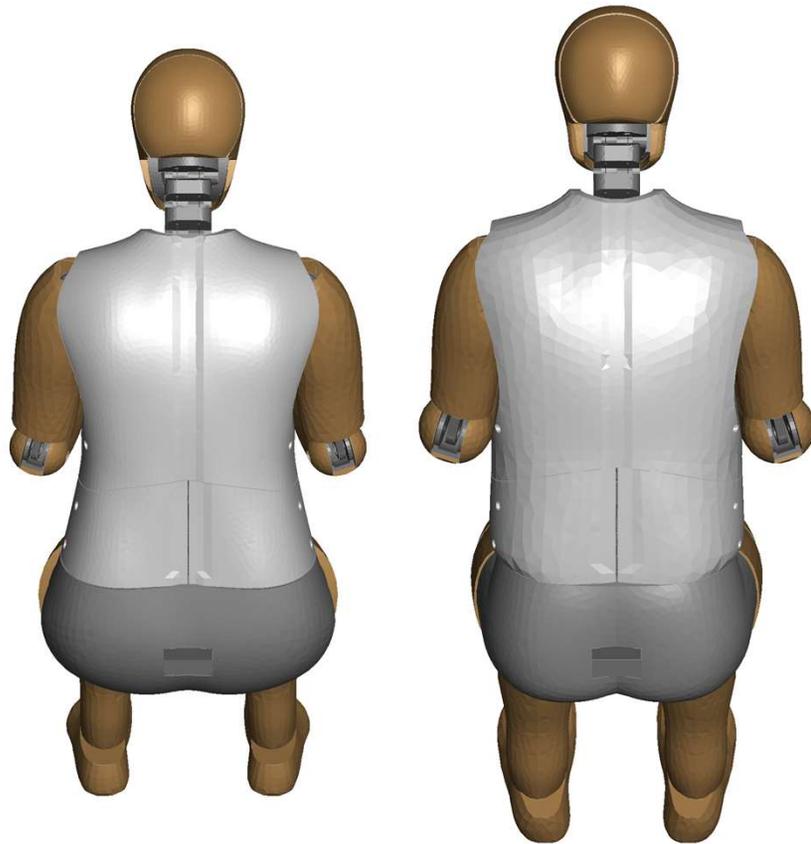
Prof Dr Astrid Linder

Swedish road and transport research institute

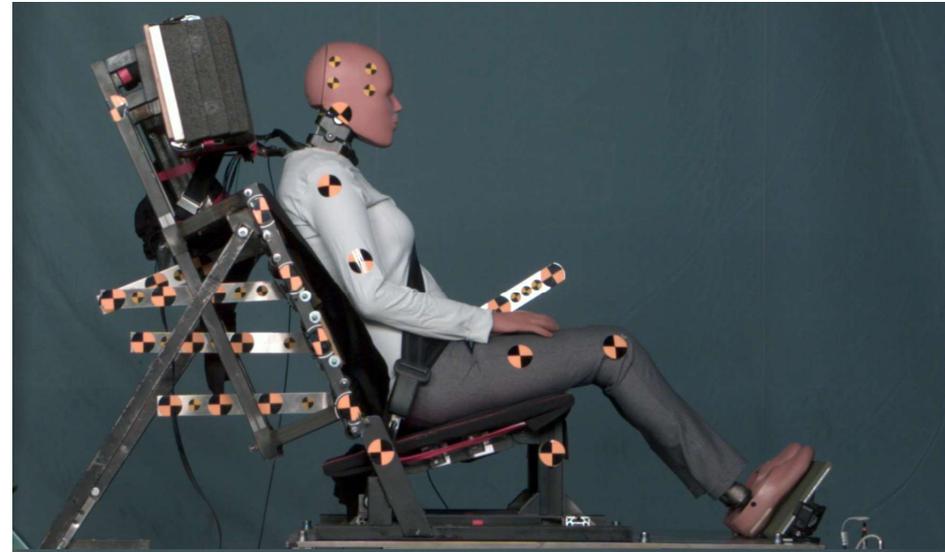
vti

EqOP meeting, Online, 6 November 2025

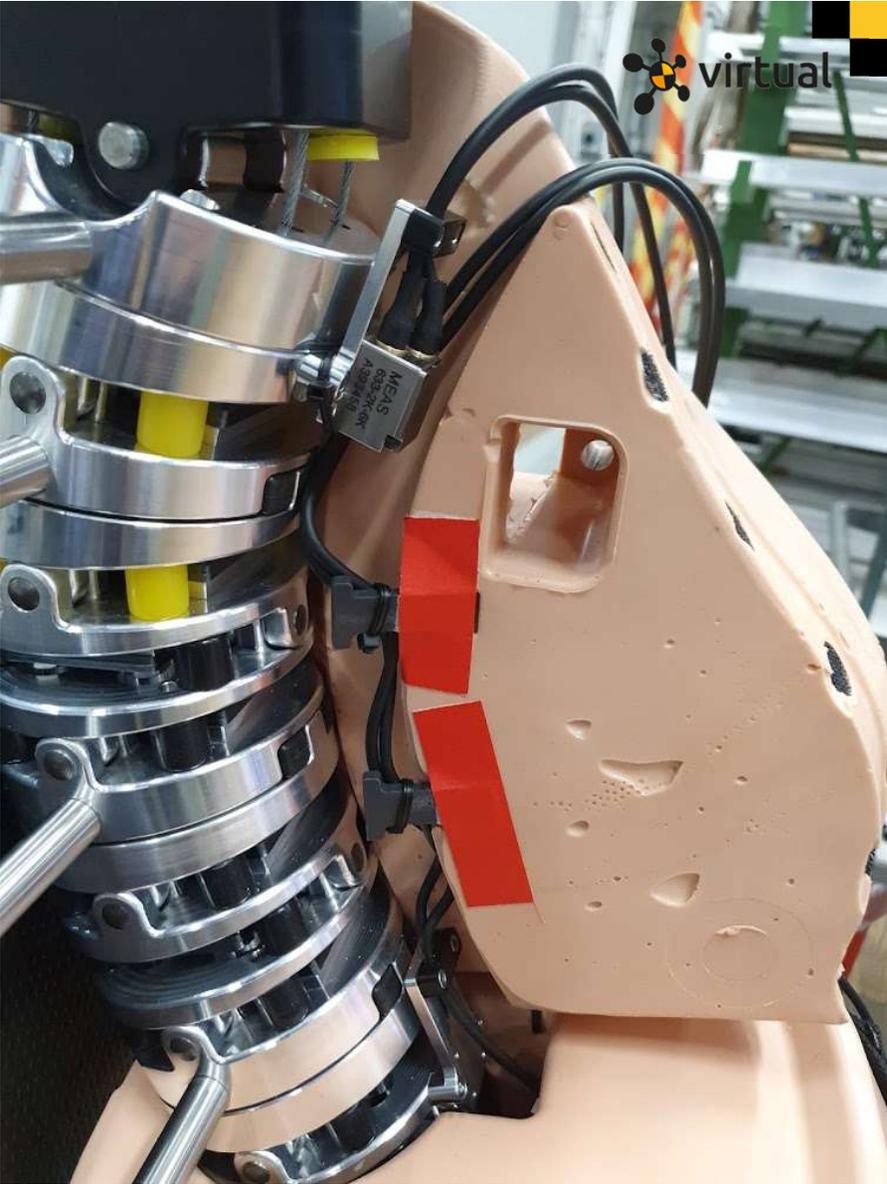
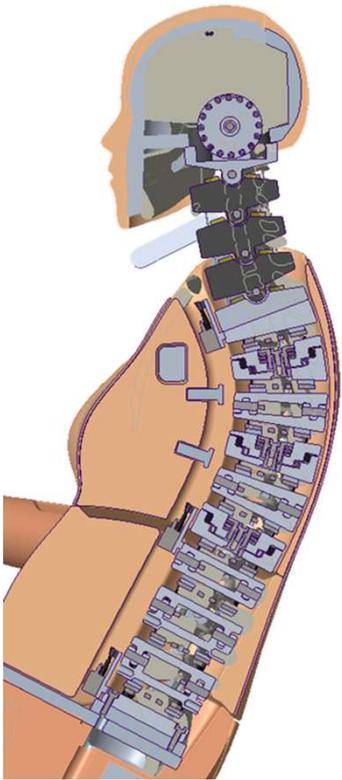
Seat Evaluation Tool, SET 50F and 50M



Karemyr et al. (2022) The Seat Evaluation Tools (SETs), VTI report 1147A.



SET 50F



Validation

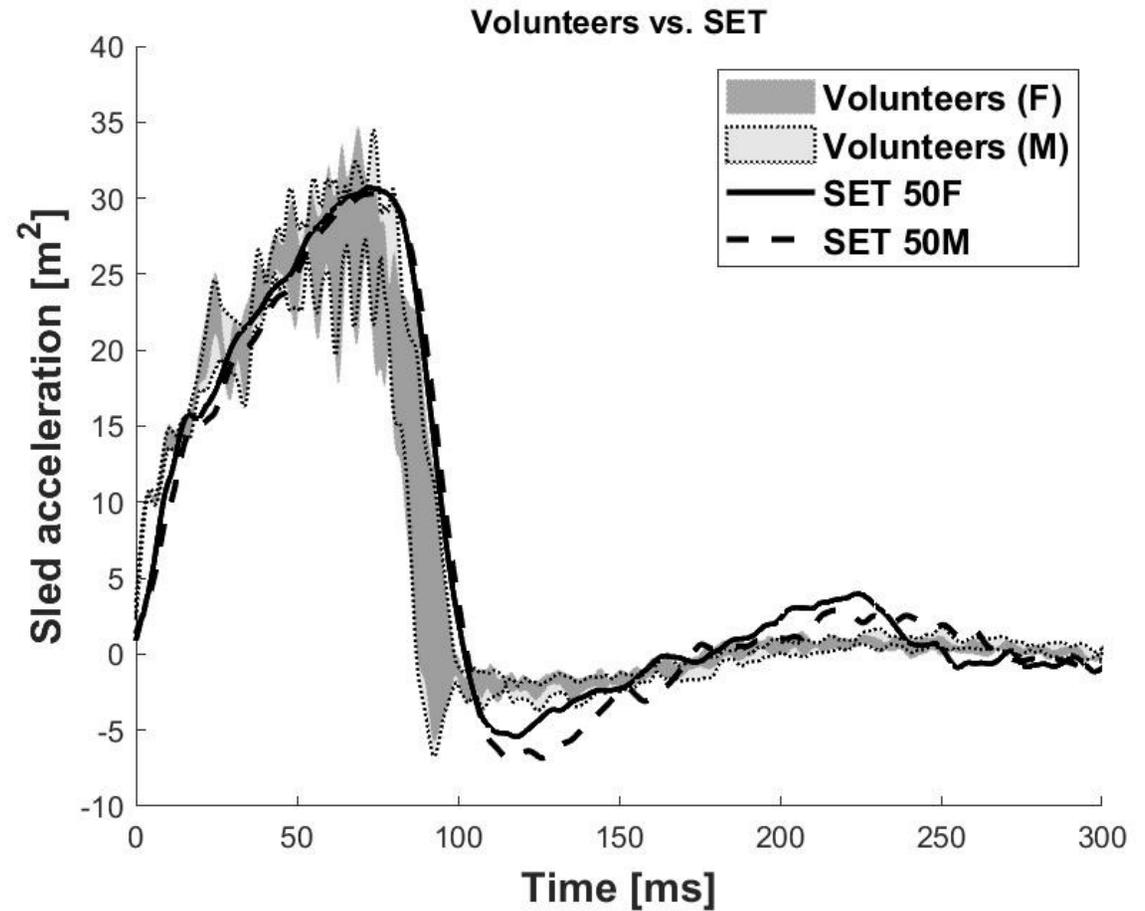
Volunteers

8 female and male
volunteer close to 50th %ile

Head-to-head restraint
distance: 150 mm

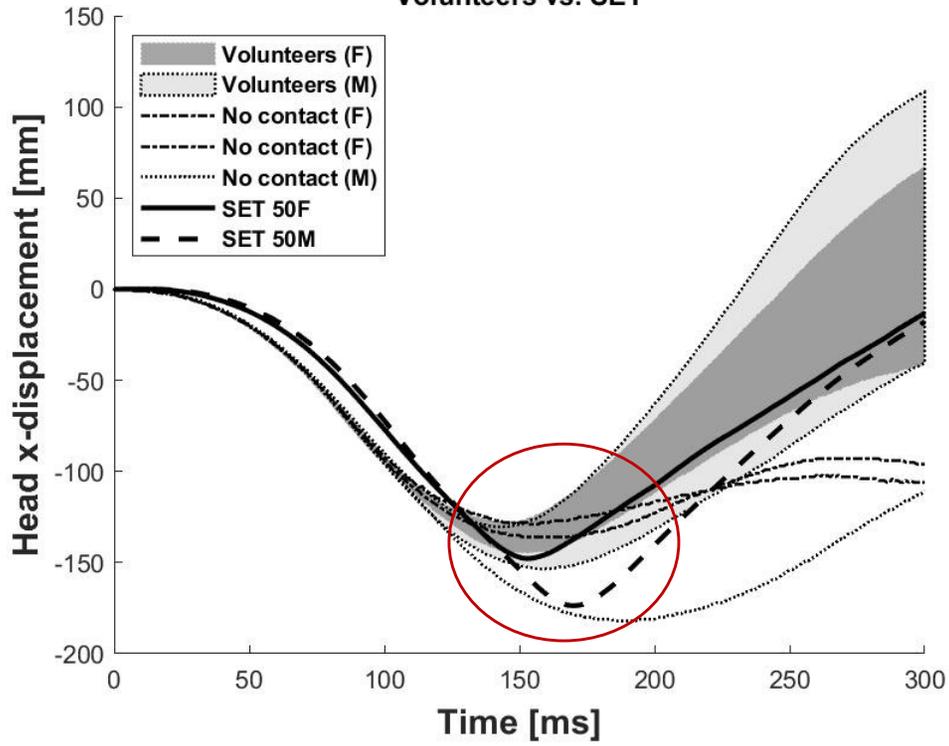
Test conditions

- 7 km/h
- Volunteers +/- 1 SD

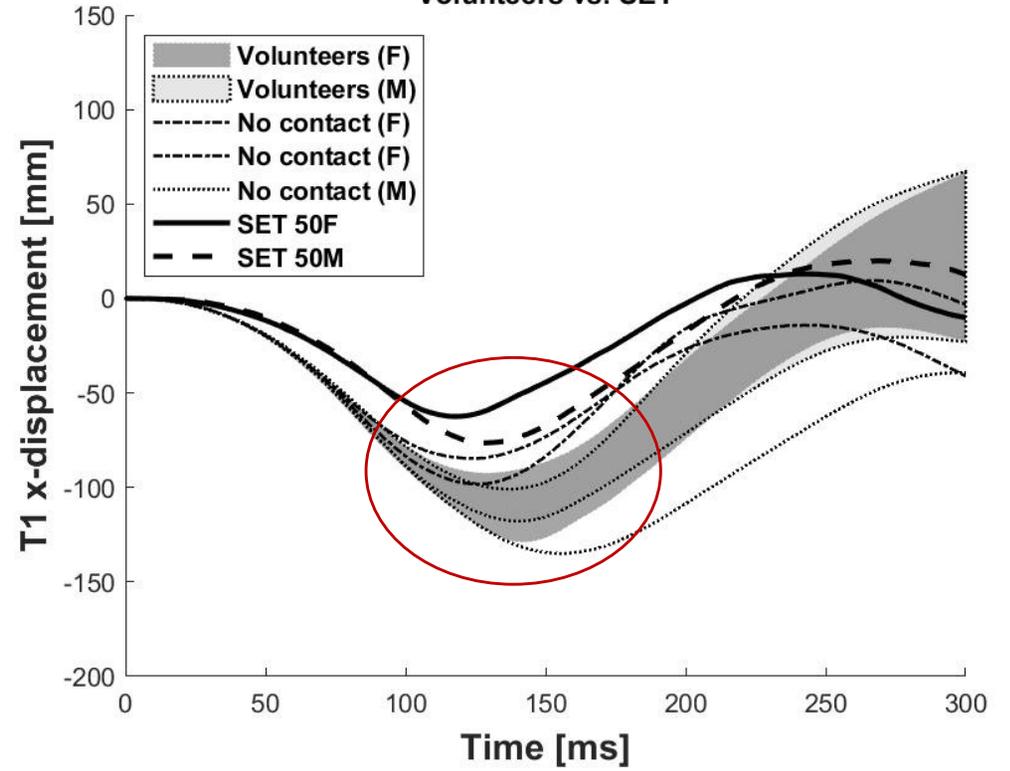


Karemyr et al. (2022) The Seat Evaluation Tools (SETs), VTI report 1147A.

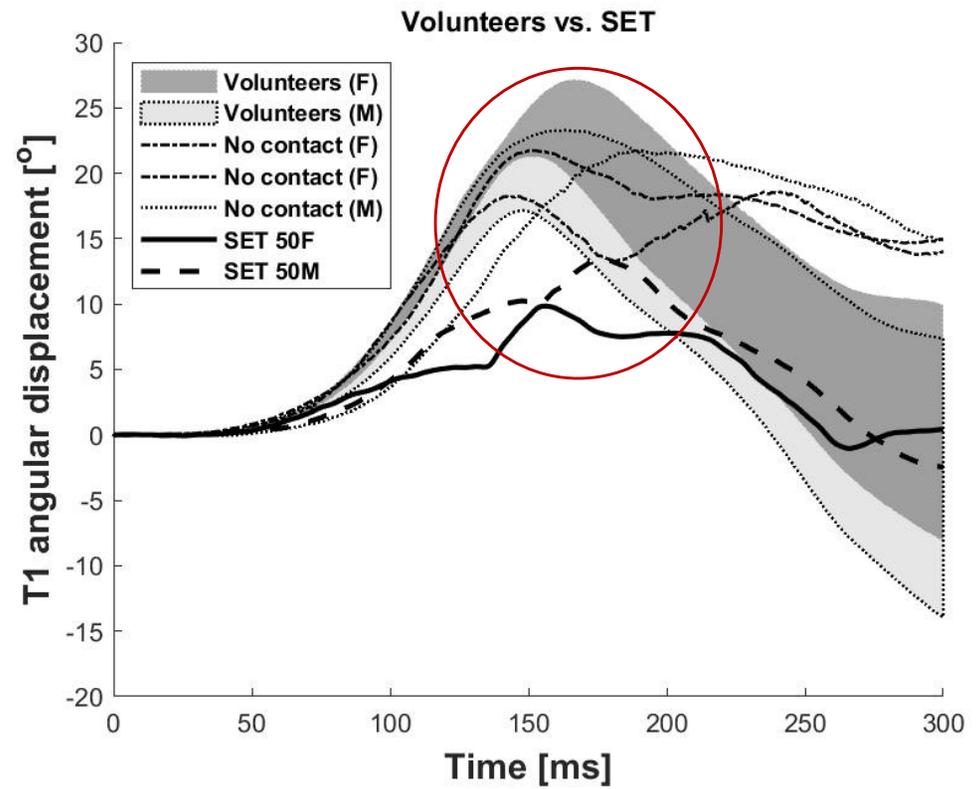
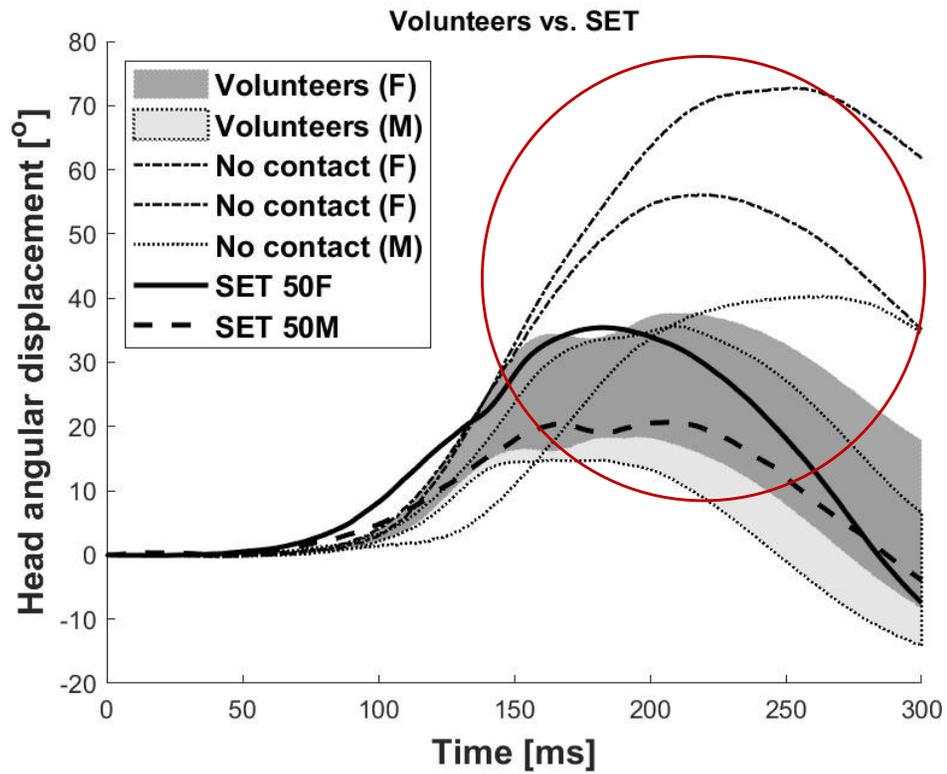
Volunteers vs. SET



Volunteers vs. SET



Karemyr et al. (2022) The Seat Evaluation Tools (SETs), VTI report 1147A.



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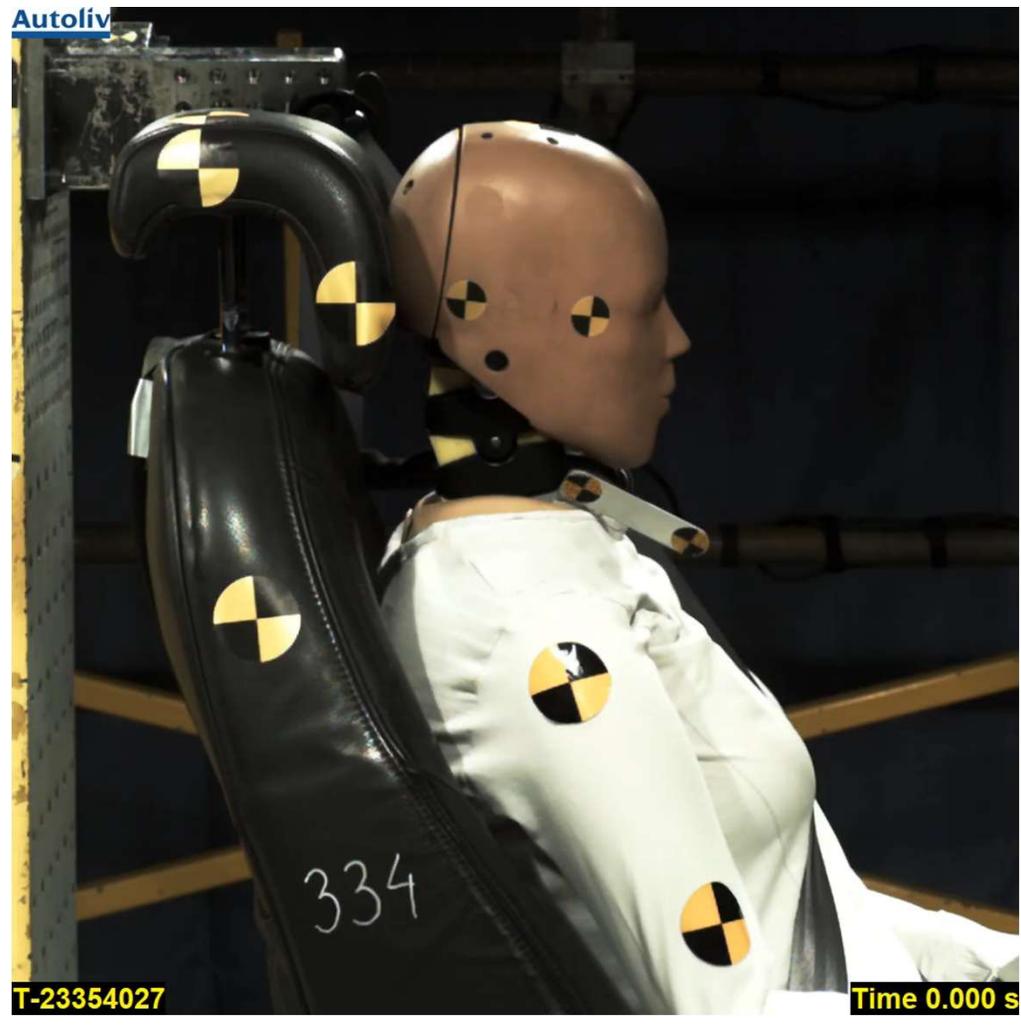
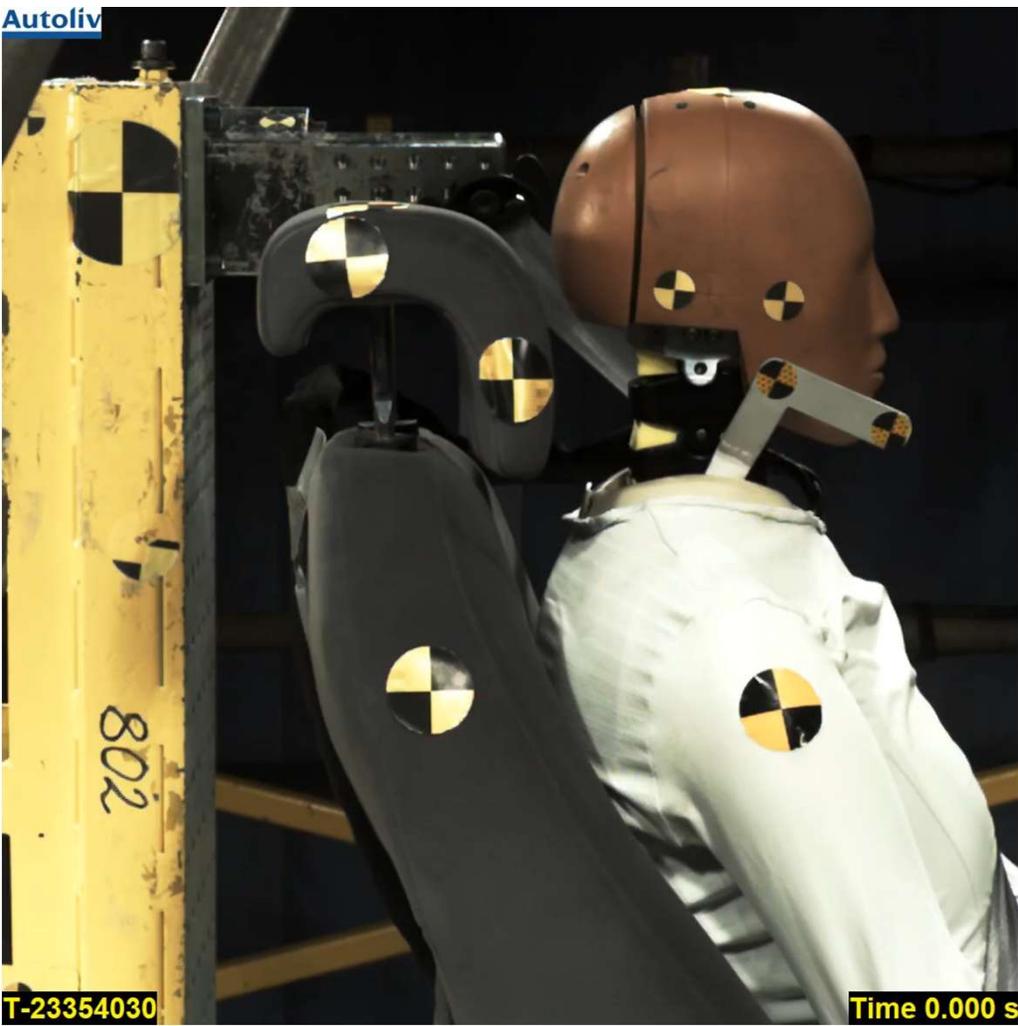
Tests with seats showing different injury protection performances

- Saab 9-3 98-02 and Audi A4 95-00

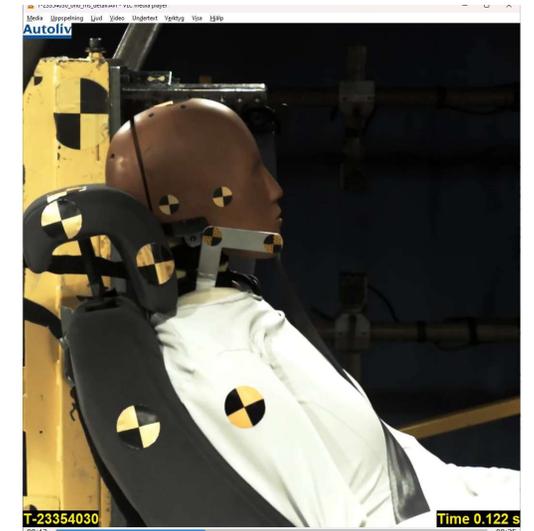
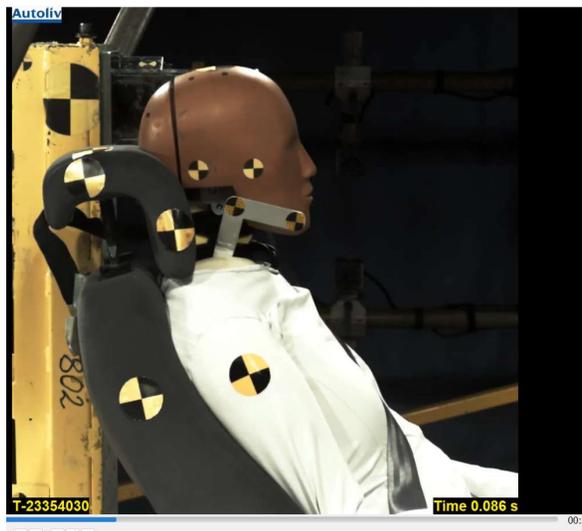
Seat/car model			Folksam injury data – Females				Folksam injury data – Males			
			n	n PMI	Risk PMI	95% CI	n	n PMI	Risk PMI	95% CI
Saab 9-3	98-02	RHR	163	7.8	4.8%	3.3%	80	0.0	0.0%	0.0%
Audi A4	95-00	-	486	7.3	1.5%	1.1%	413	10.4	2.5%	1.5%

- Euro NCAP mid-severity pulse, 16 km/h
- SET v0.2 50F and 50M

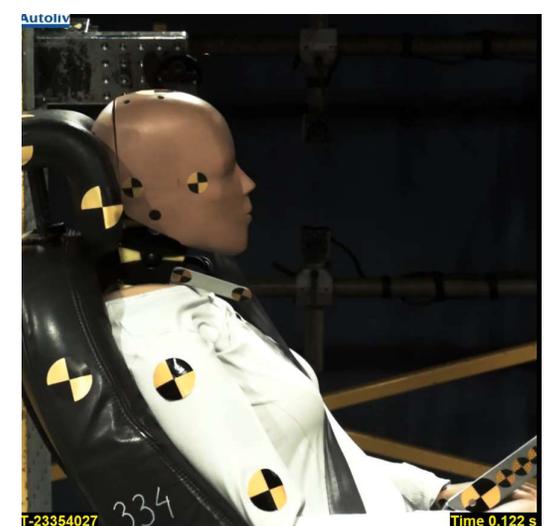
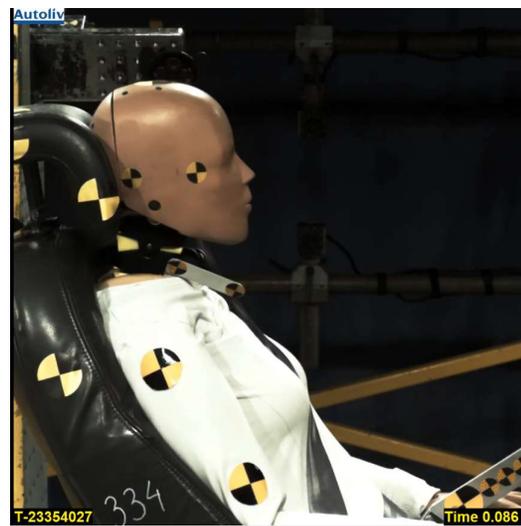
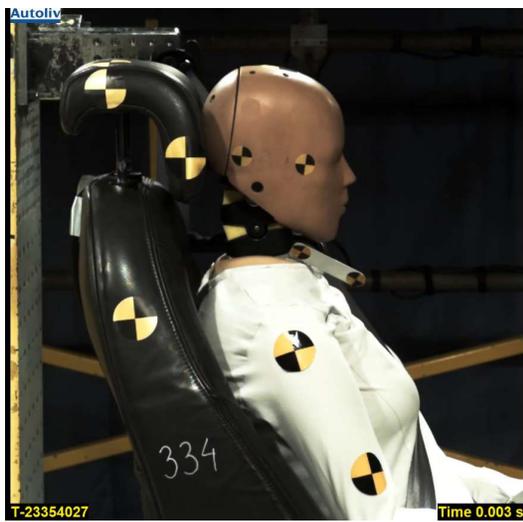




50M



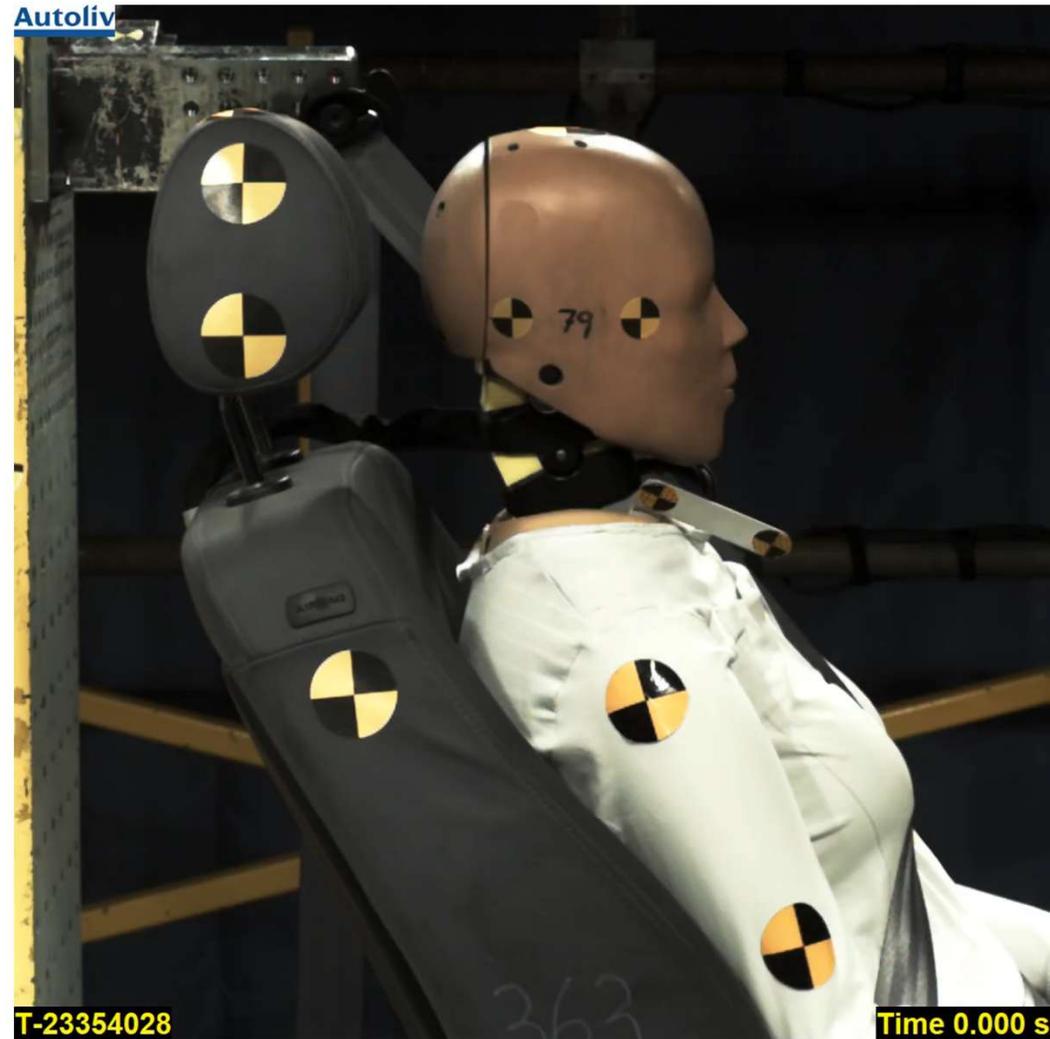
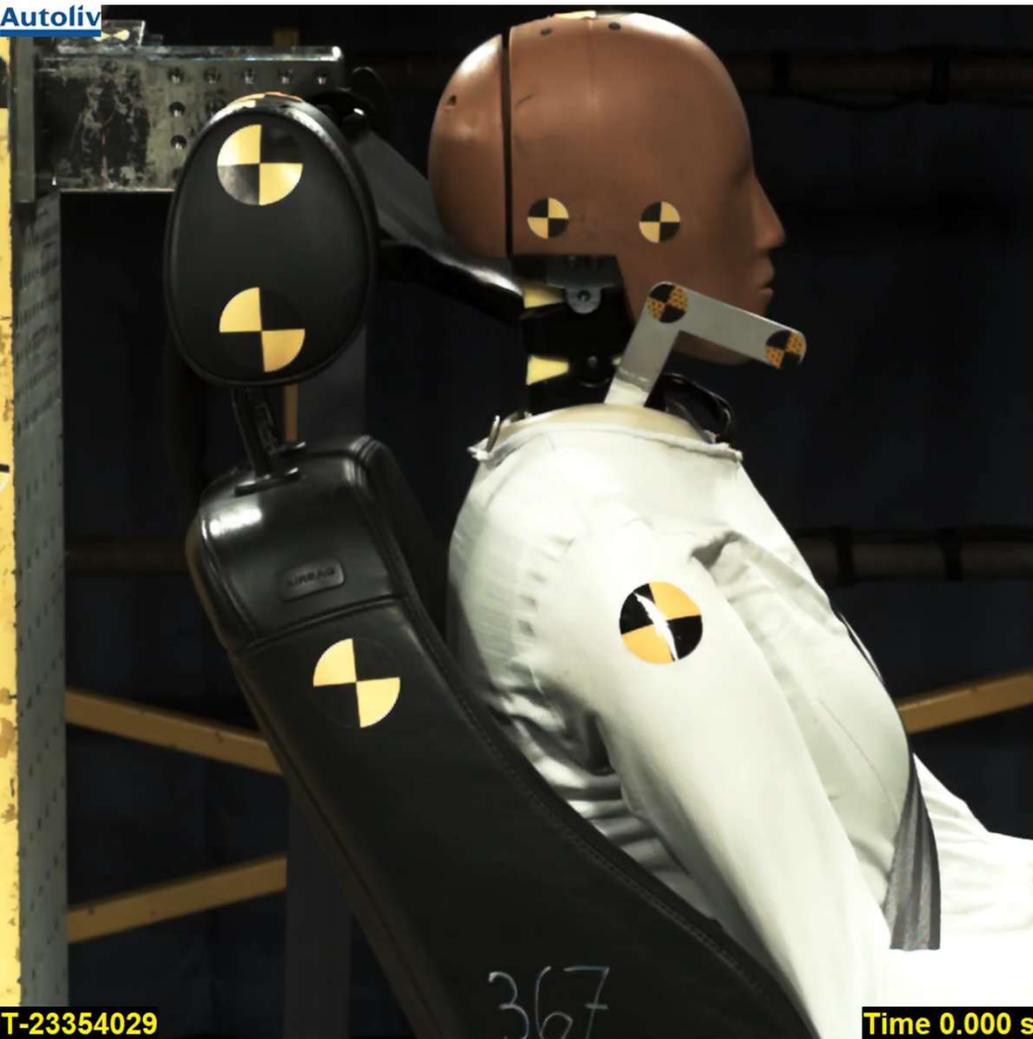
50F



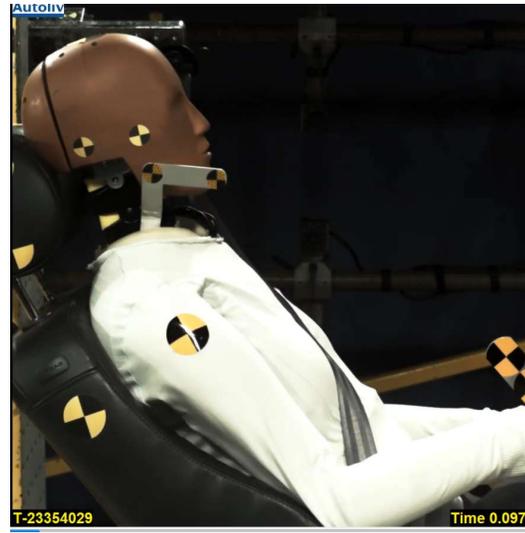
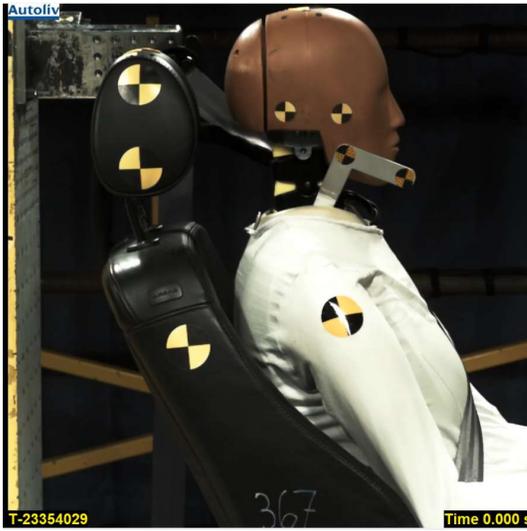
Initial position

86 ms

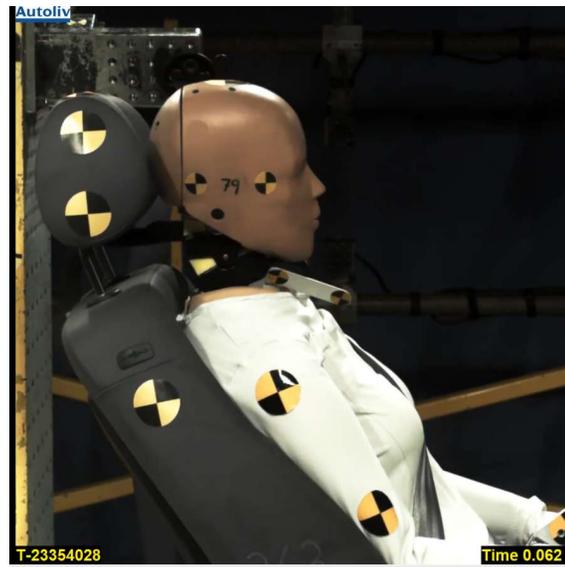
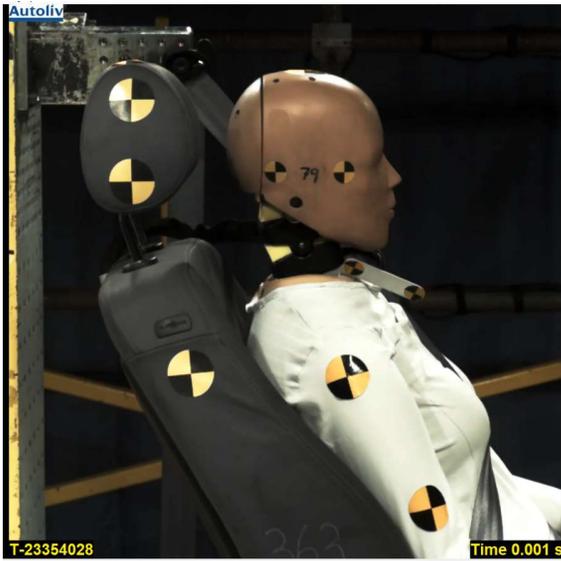
122 ms



50M

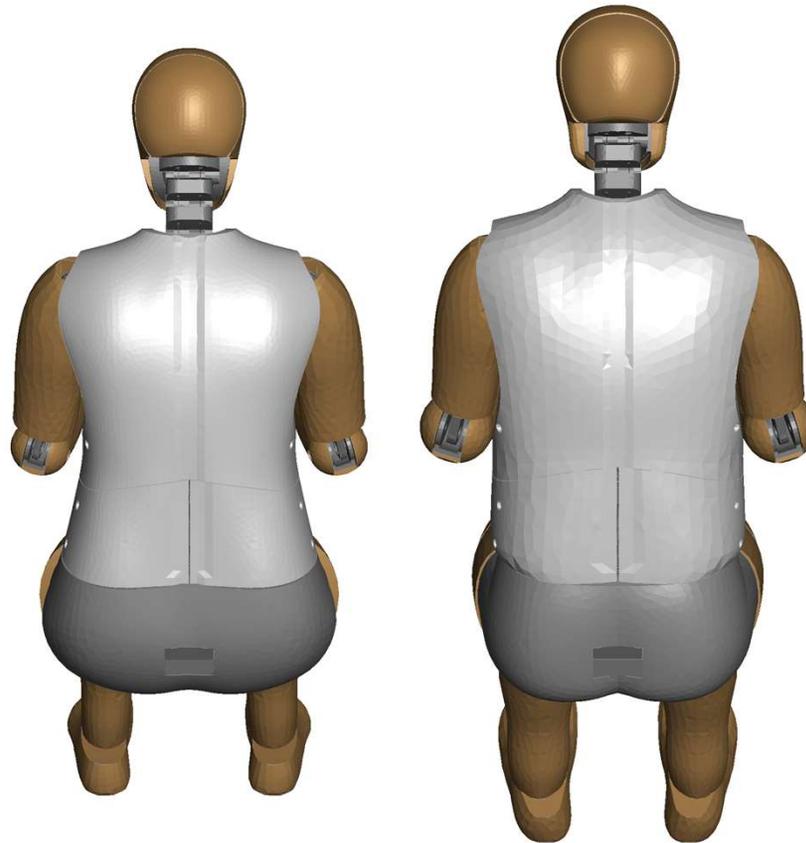


50F



Car model	Female, risk PMI (%) SET 50F NICmax (m*m/s*s)	Male, risk PMI (%) SET 50M NICmax (m*m/s*s)
Saab 9-3	4.8 14.5	0.0 9.7
Audi A4	1.5 12.3	2.5 19.0

FE SET v0.2 released 27 November at OpenVT.eu



Acknowledgement

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Thank you for your attention

