New Case2 committee meshes for AutoCFD-5

16th February 2026

Vangelis Skaperdas

BETA CAE Systems is now part of Cadence

BETA SIMULATION SOLUTIONS

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Summary of new meshes for AutoCFD-5

- Redistribution of refinement zones aimed at:
  - Further refinement of surface curvatures
  - Further refinement of important flow regions
  - Coarsening of unnecessarily refined areas
  - Use of fewer Size Boxes and rely more on Surface Offset and Sweep rules
- Reduction of total number of layers from 7 to 5
- Minor PID name modifications and addition of one new PID (please check your previous CFD setups)
- Overall ~22% reduction in cell count
- Better quality criteria for more CFD solvers

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Summary of new meshes for AutoCFD-5

	AutoCFD-4 (ANSA v24.1.3)		AutoCFD-5 (ANSA 2025.2.0)	
	Case 2a Notchback	Case 2b (deflector) Notchback	Case 2a Notchback	Case 2b (deflector) Notchback
Number of shell elements (million)	11.2	11.3	**10.3**	**10.4**
Number of vol elements (million)	157	158	**123**	**126**
First layer height (mm)	0.75		**0.75**	
Number of viscous layers	7		**5**	
Growth rate	1.2 – 1.4 variable		**1.2 – 1.4 variable**	

Speed: ~30min on AMD Ryzen threadripper PRO 9995WX – 96 cores

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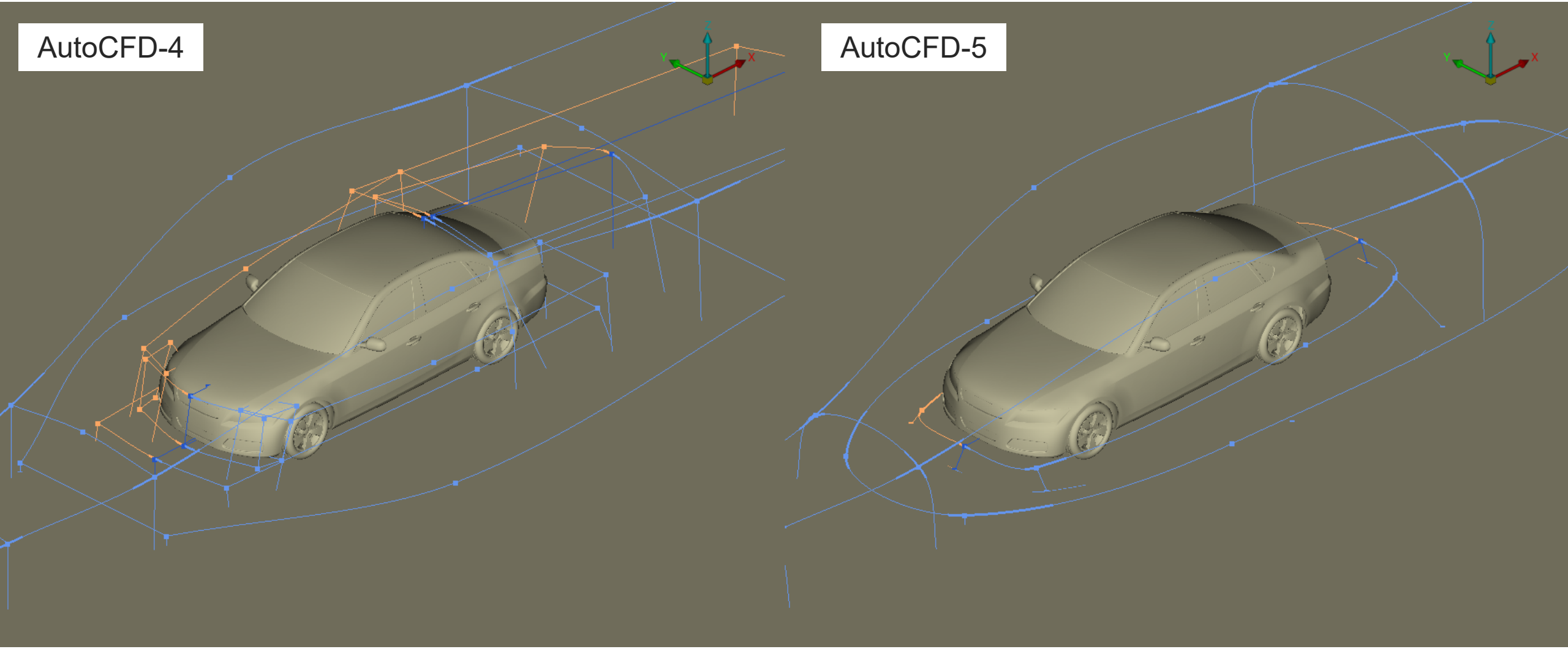
Simplification of Size Boxes



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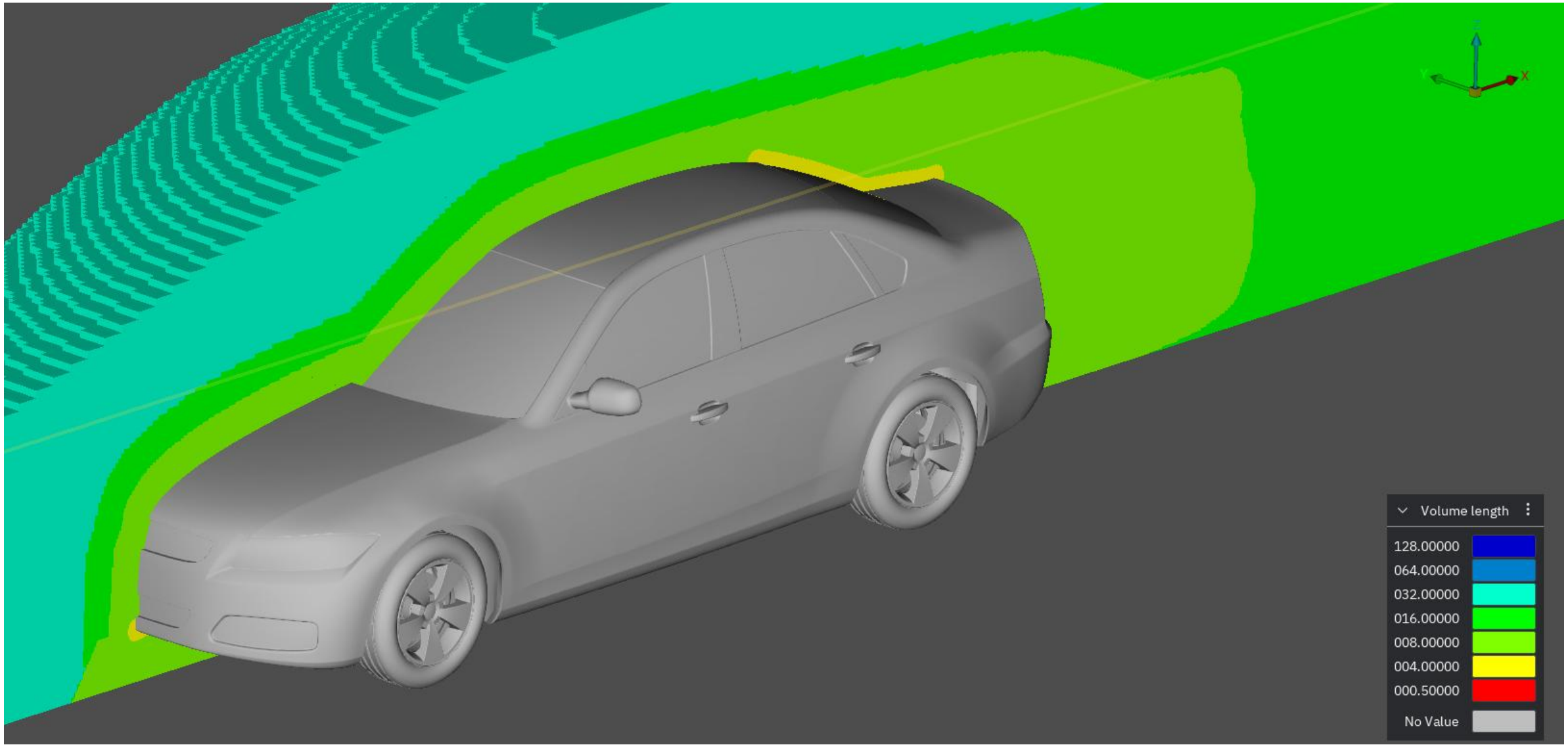
New setup relies more on Surface Offset and sweep size rules



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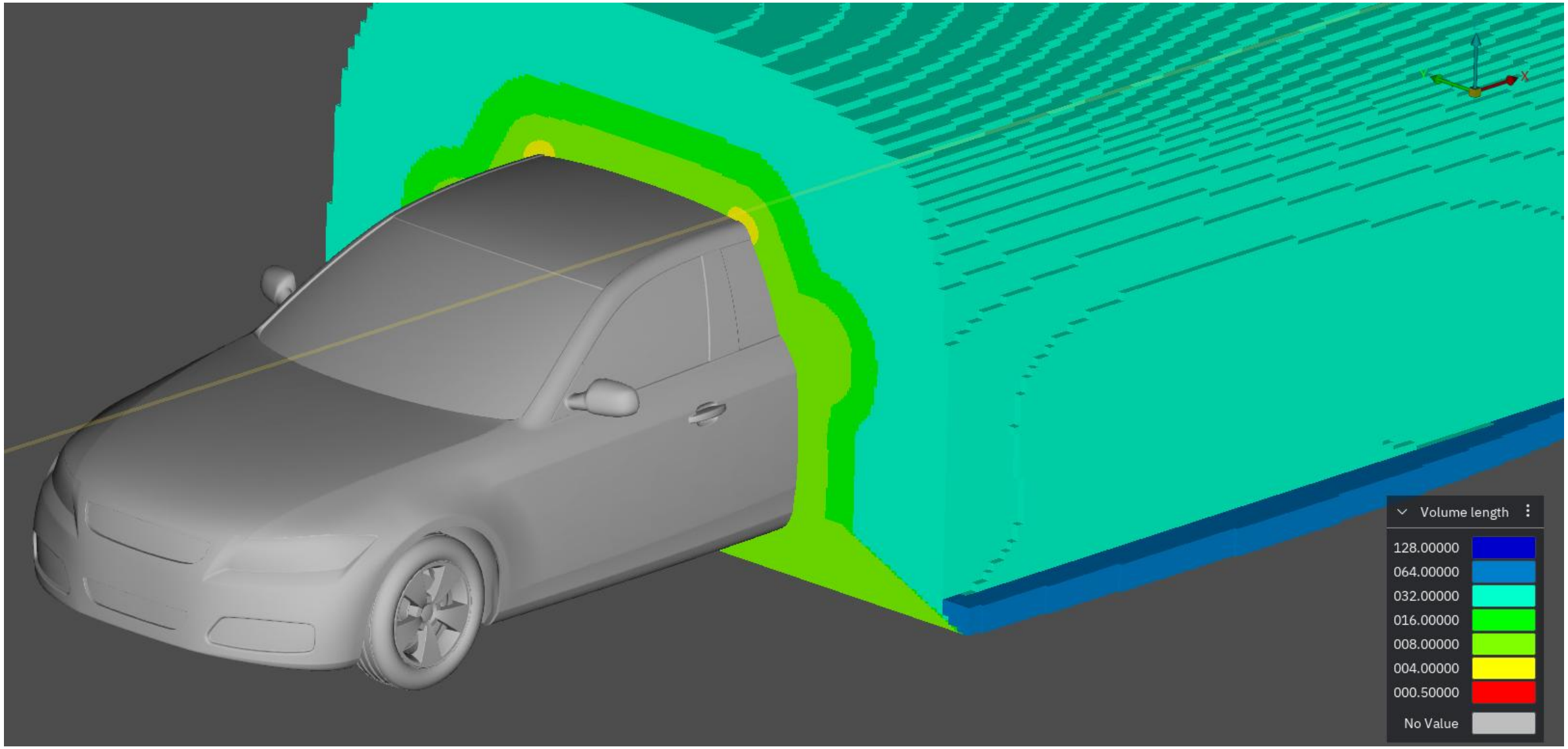
New setup relies more on Surface Offset and sweep size rules



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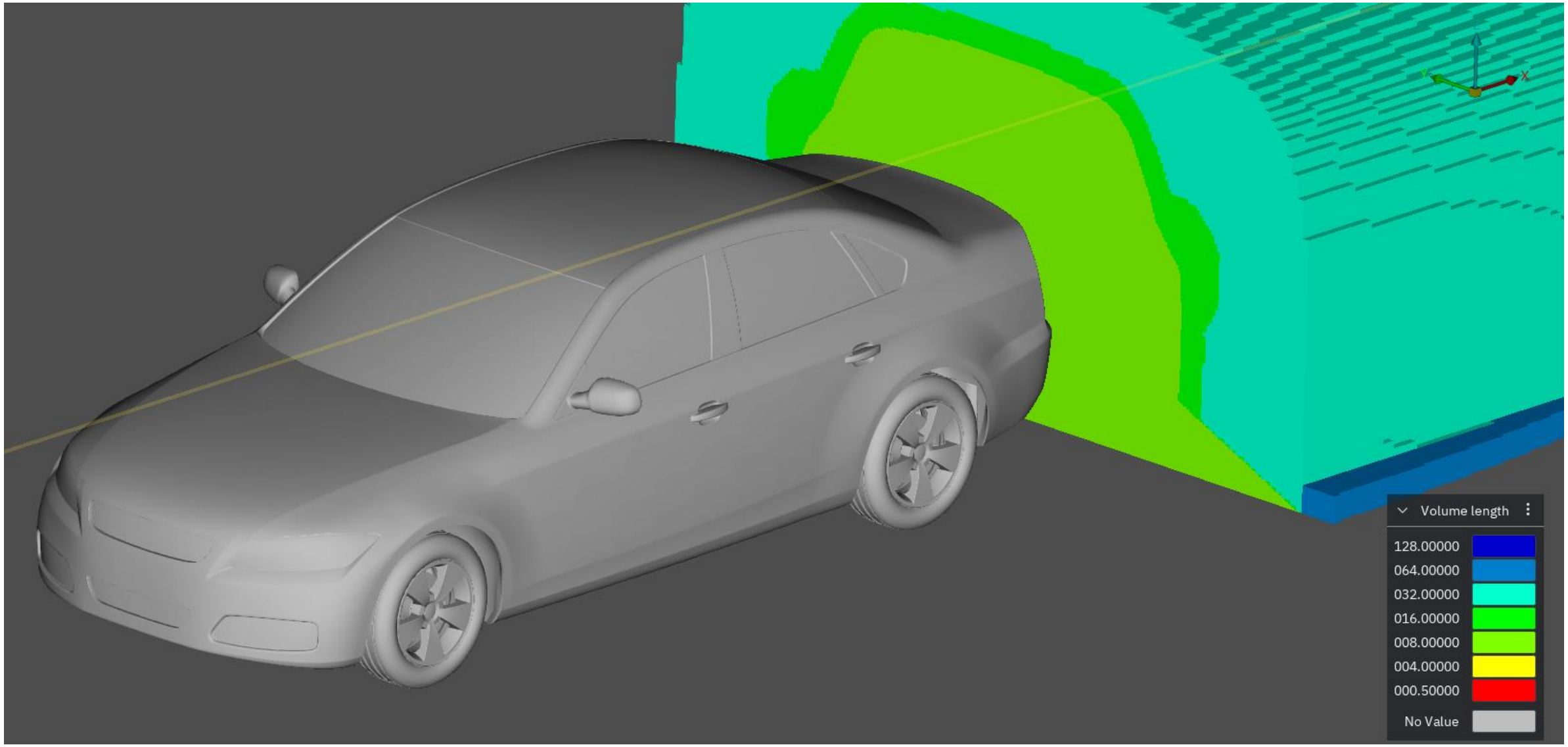
New setup relies more on Surface Offset and sweep size rules



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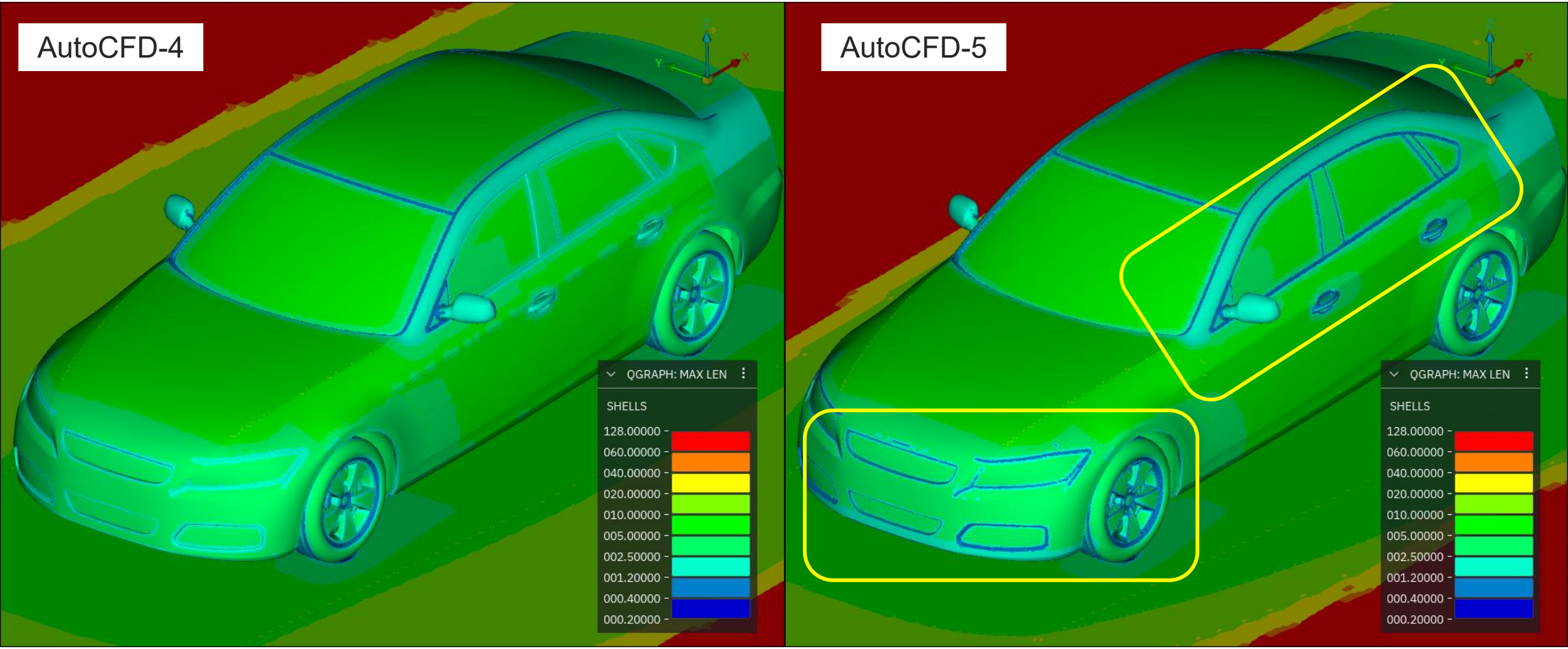
Surface mesh size contour plot (mm)



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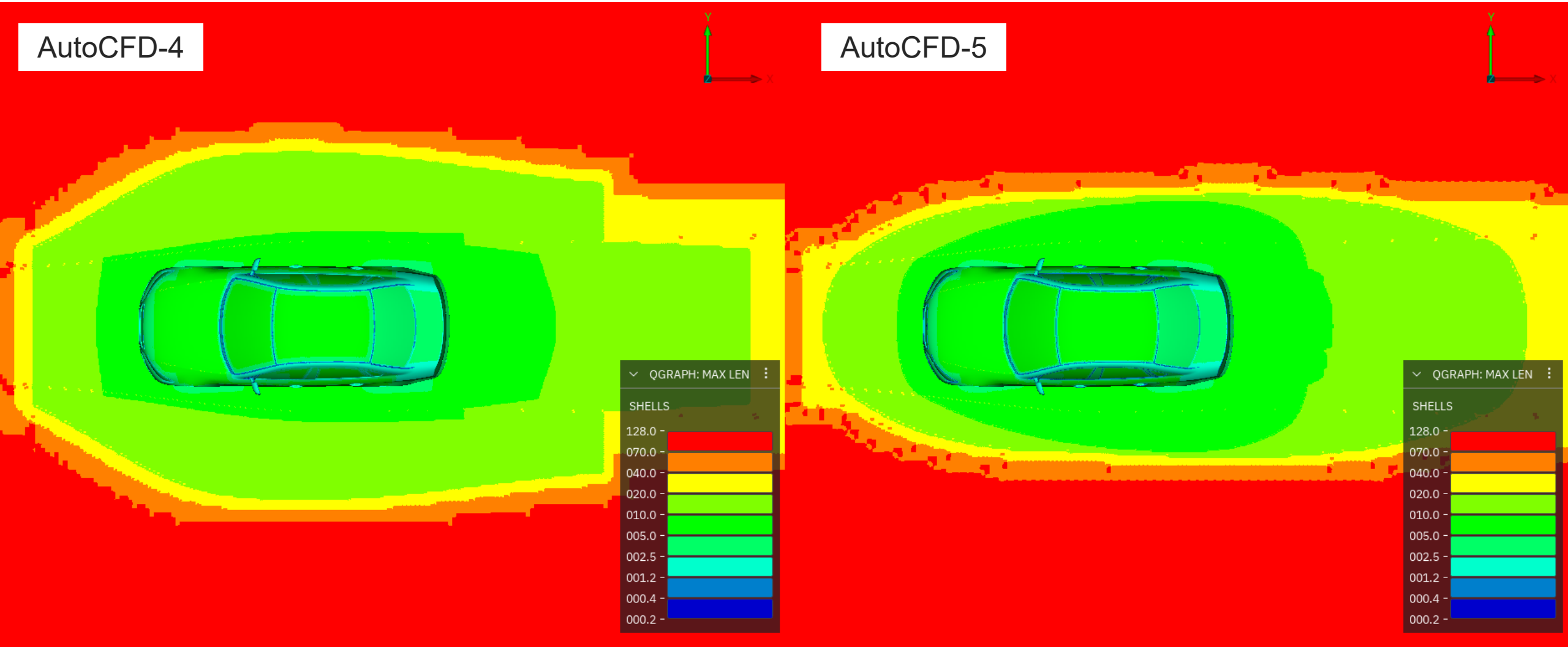
Surface mesh size contour plot (mm)



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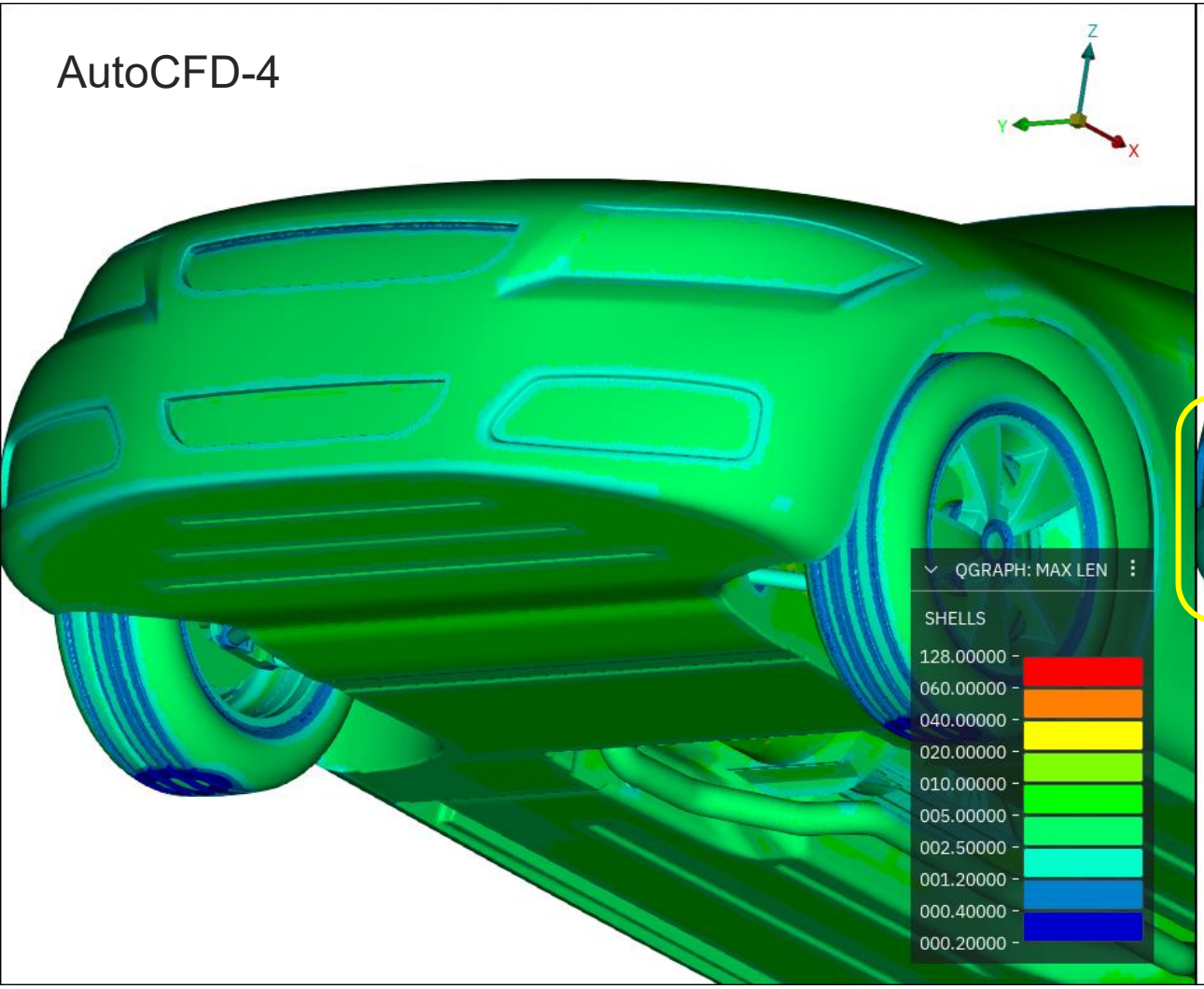
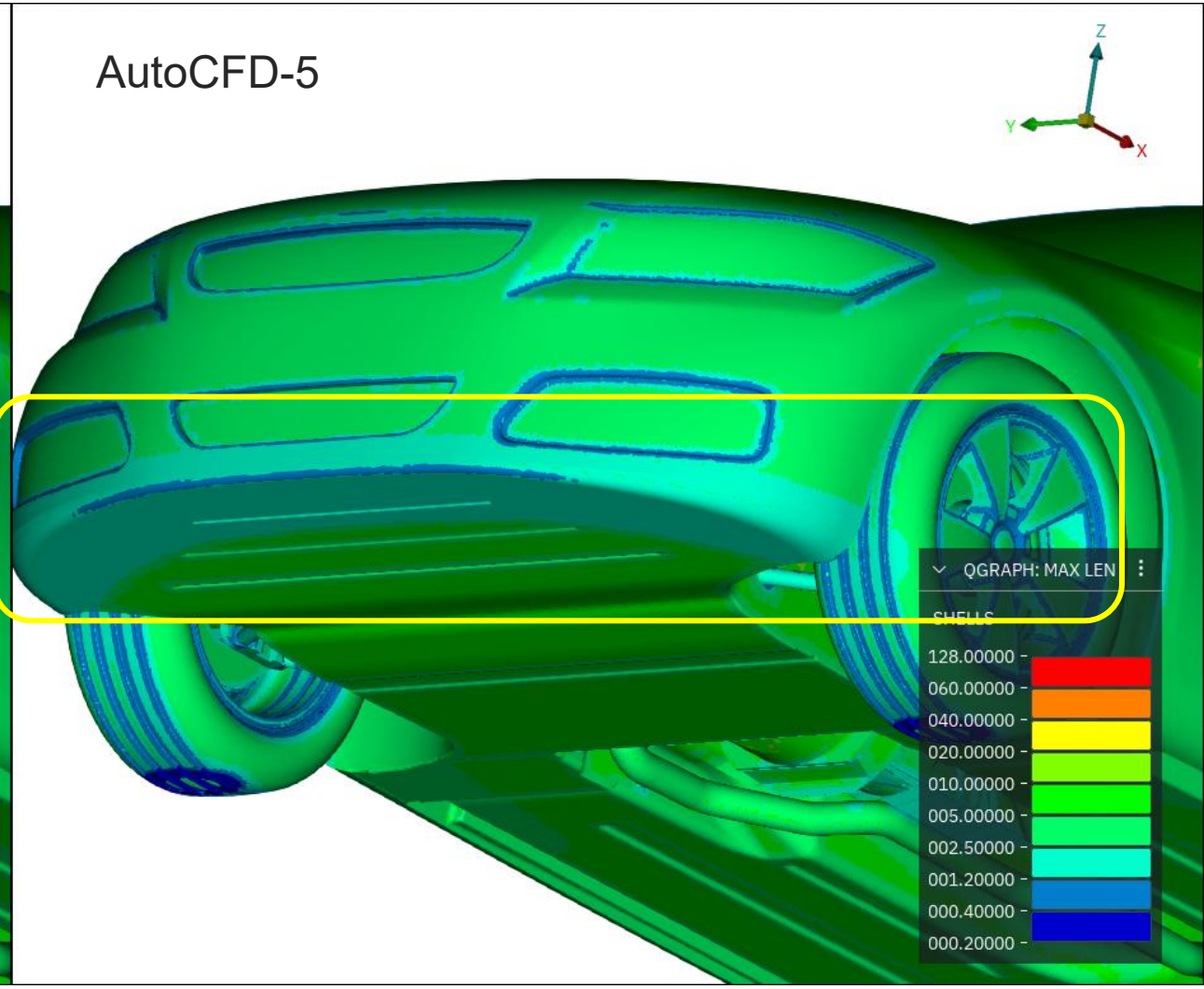
Surface mesh size contour plot (mm)

AutoCFD-4



AutoCFD-5



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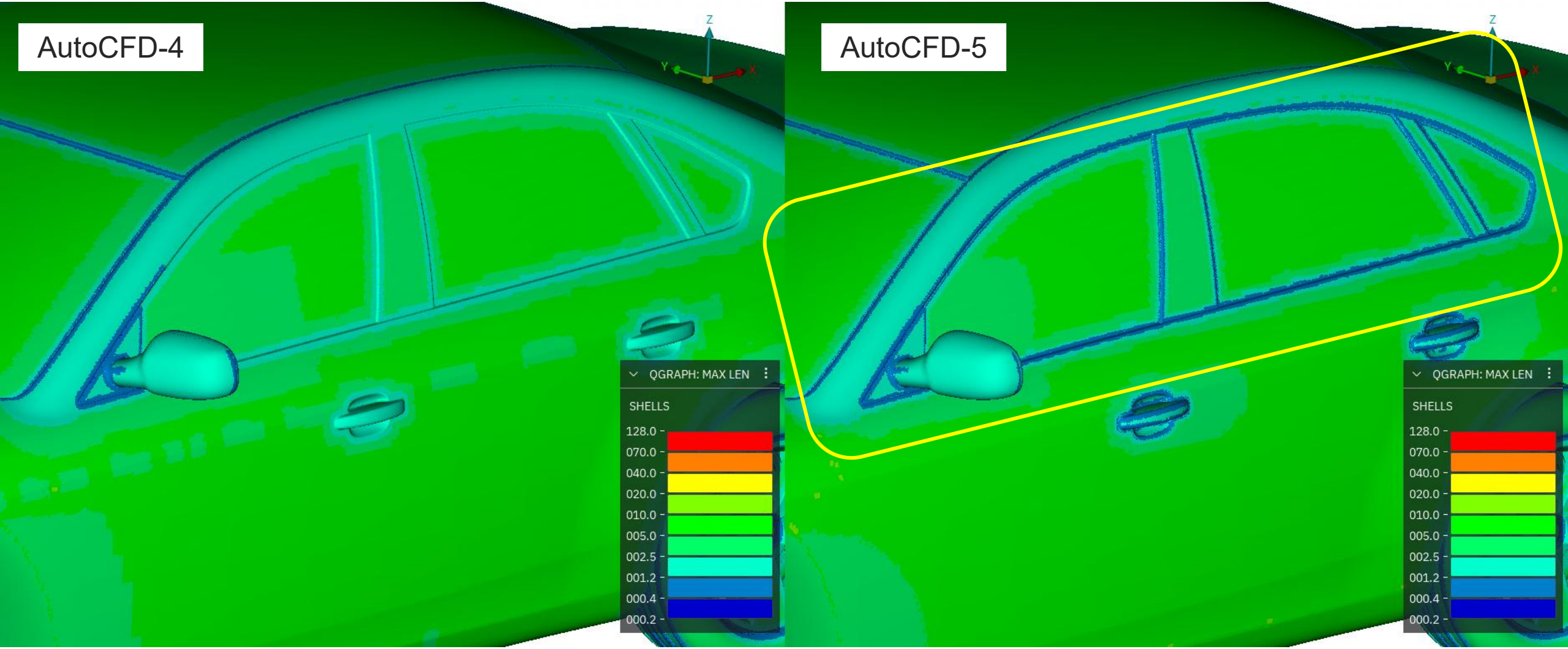
Surface mesh size contour plot (mm)



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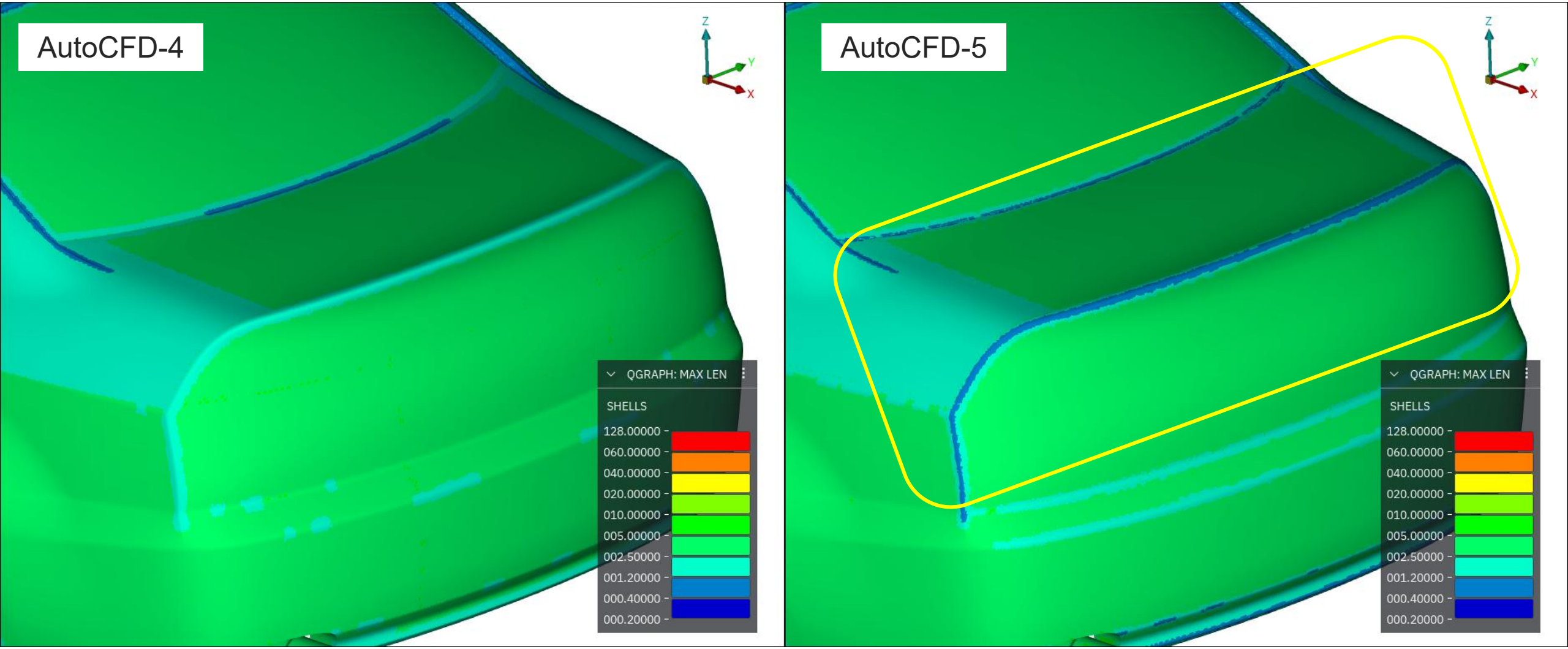
Surface mesh size contour plot (mm)



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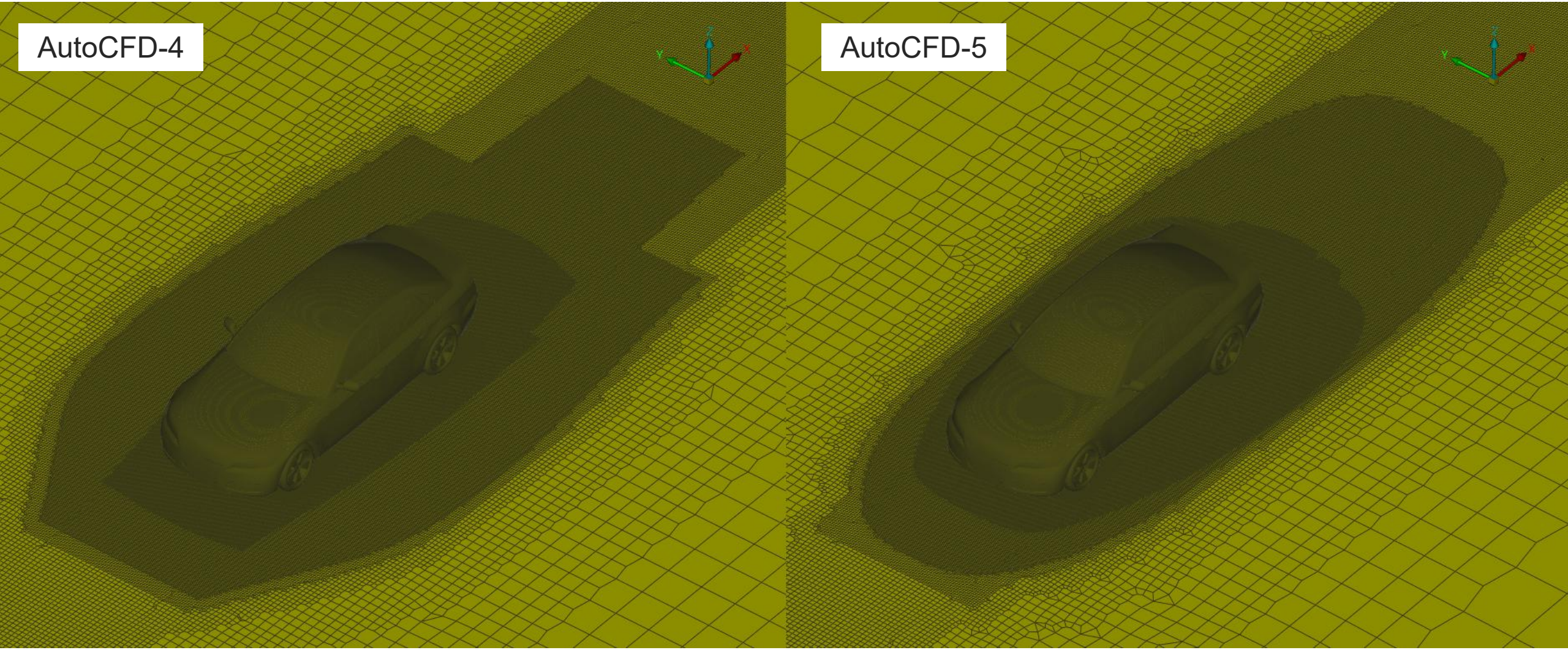
Surface mesh



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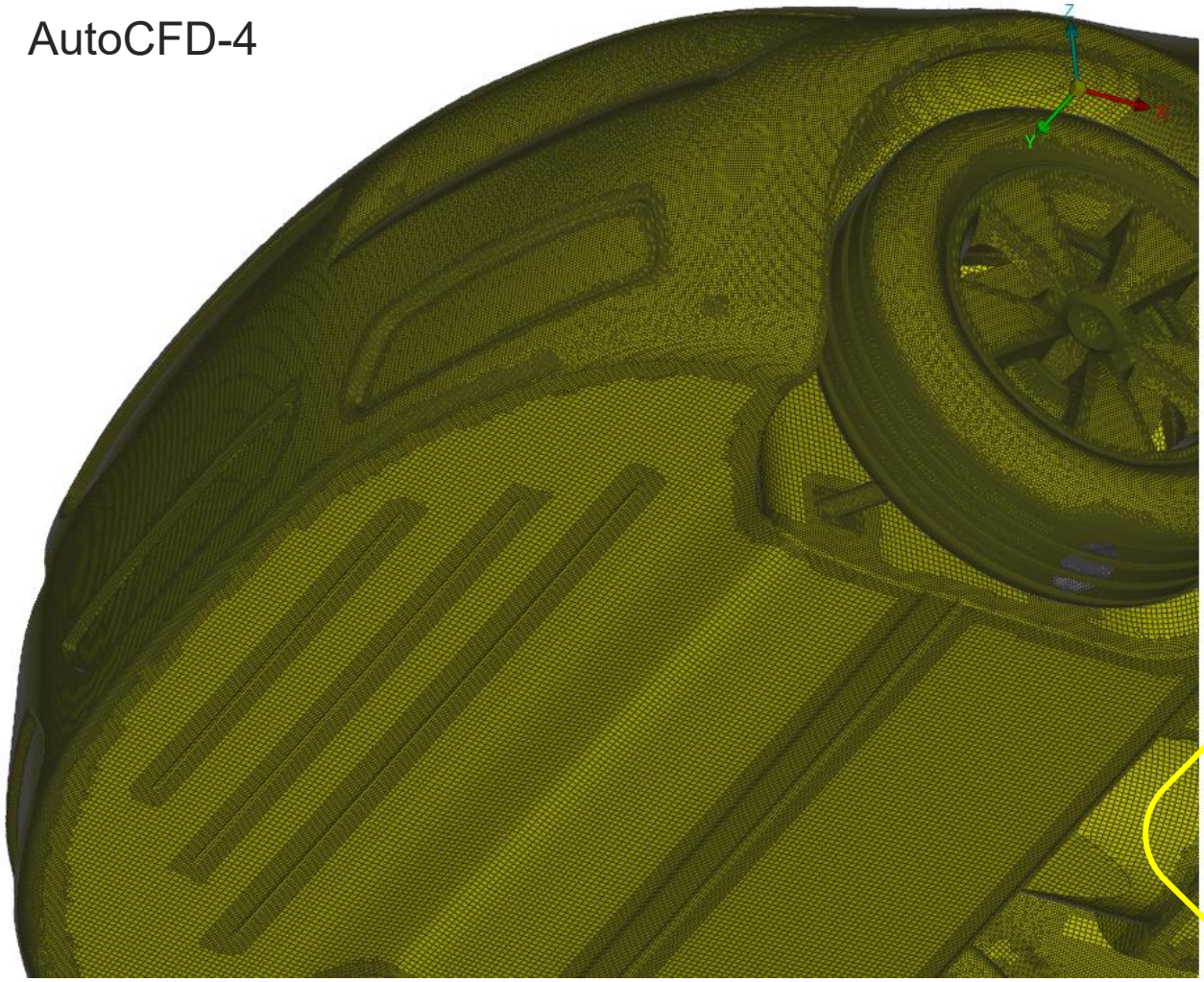
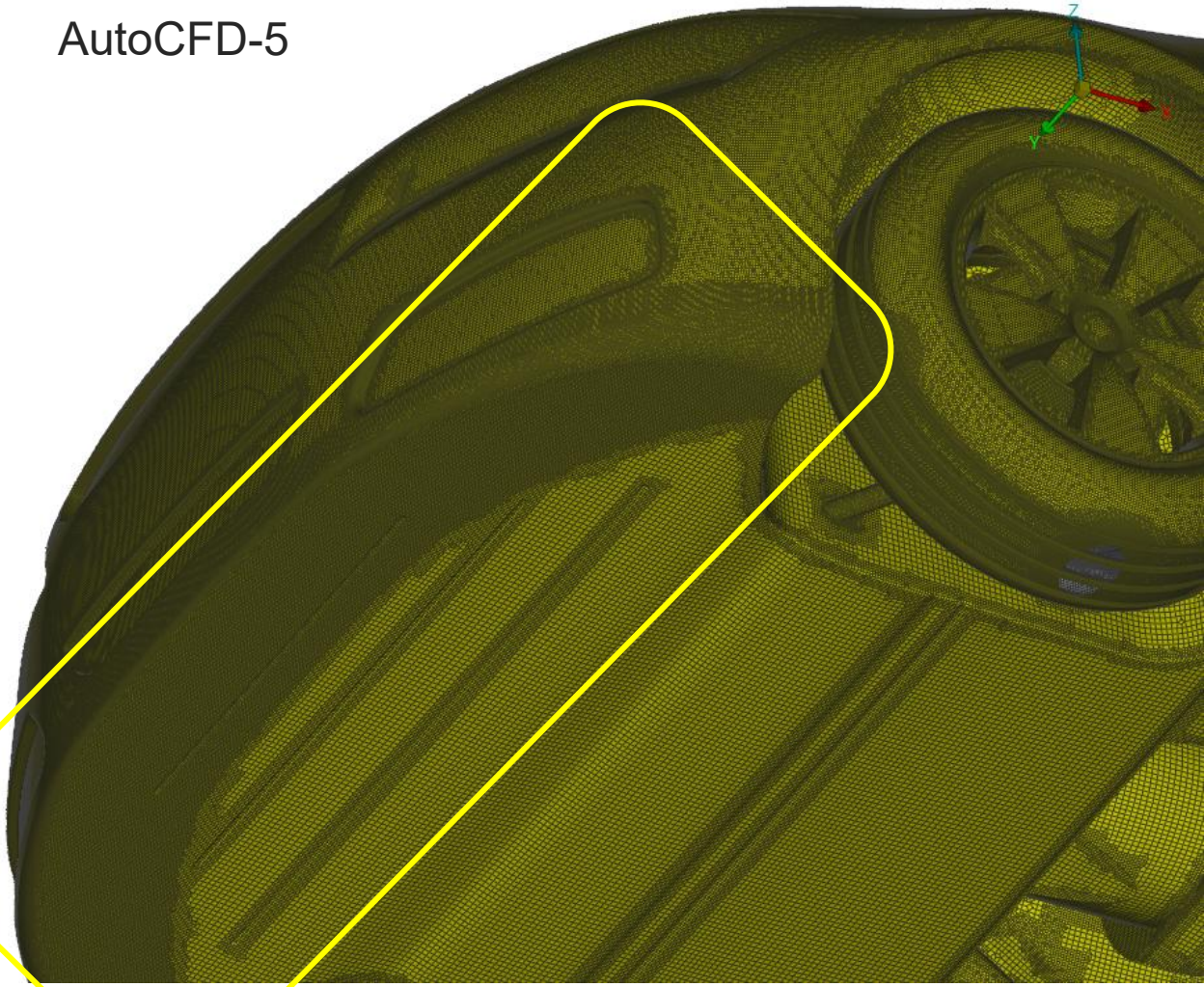
Surface mesh – refined area at front facia lower lip

AutoCFD-4



AutoCFD-5



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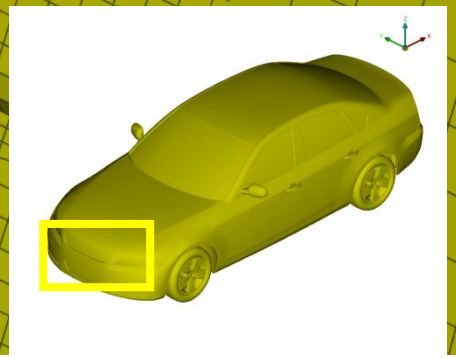
Surface mesh size near front grill lip

AutoCFD-4

AutoCFD-5



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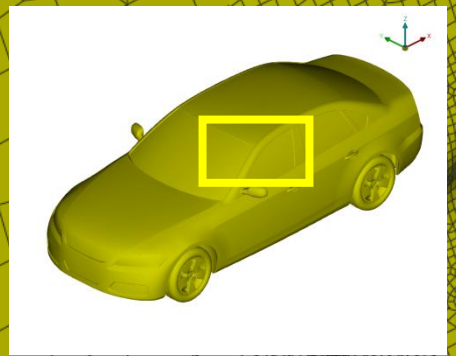
Surface mesh near A-pillar region

AutoCFD-4

AutoCFD-5



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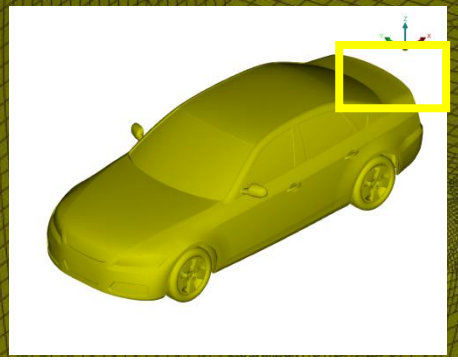
Surface mesh near rear boot lip

AutoCFD-4

AutoCFD-5



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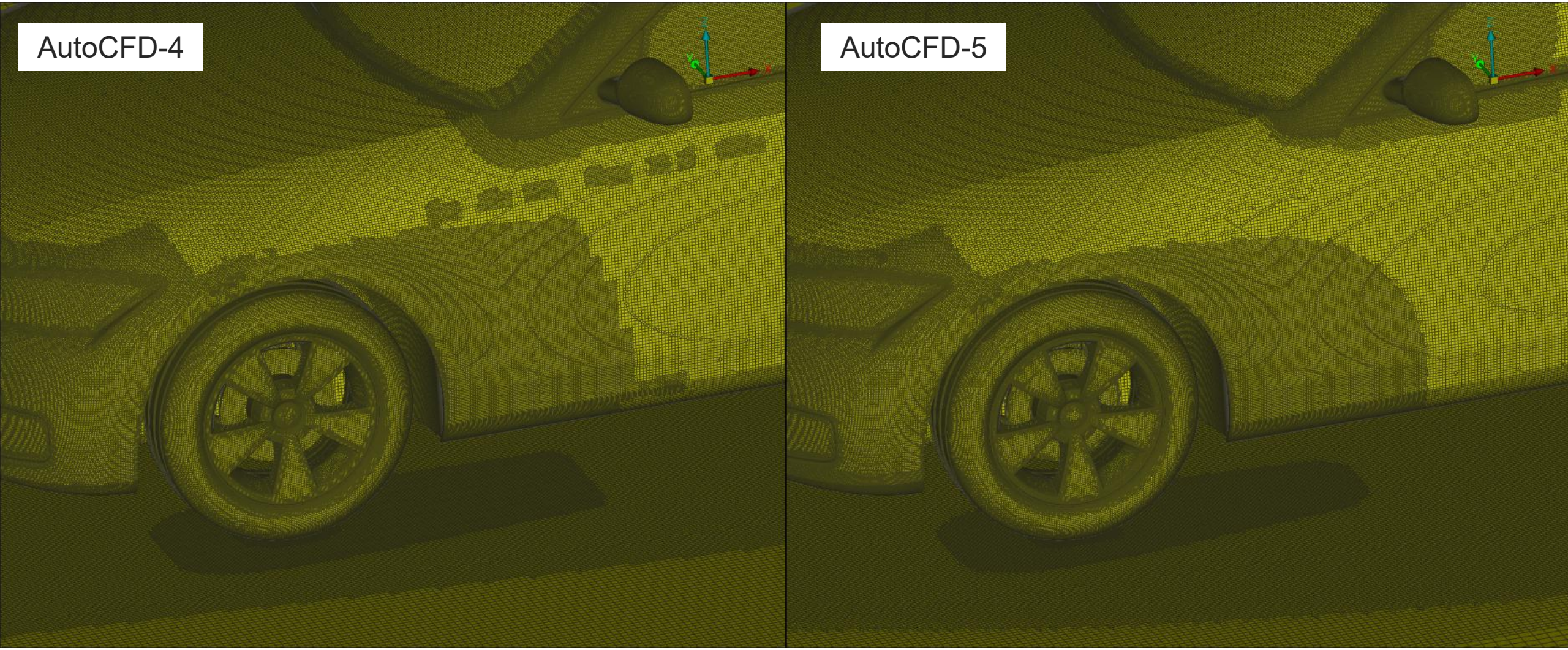
Surface mesh – small reduction of mirror wake refinement



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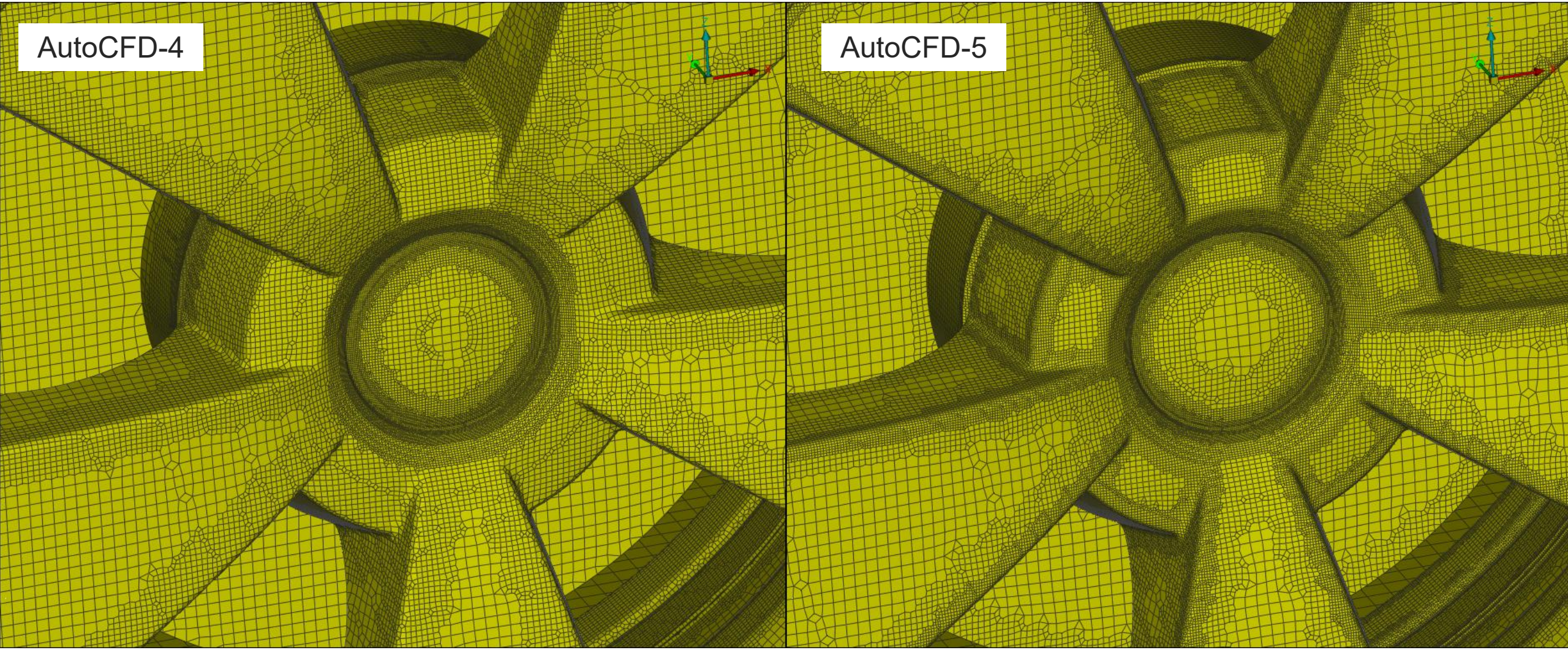
Surface mesh – small reduction of mirror wake refinement



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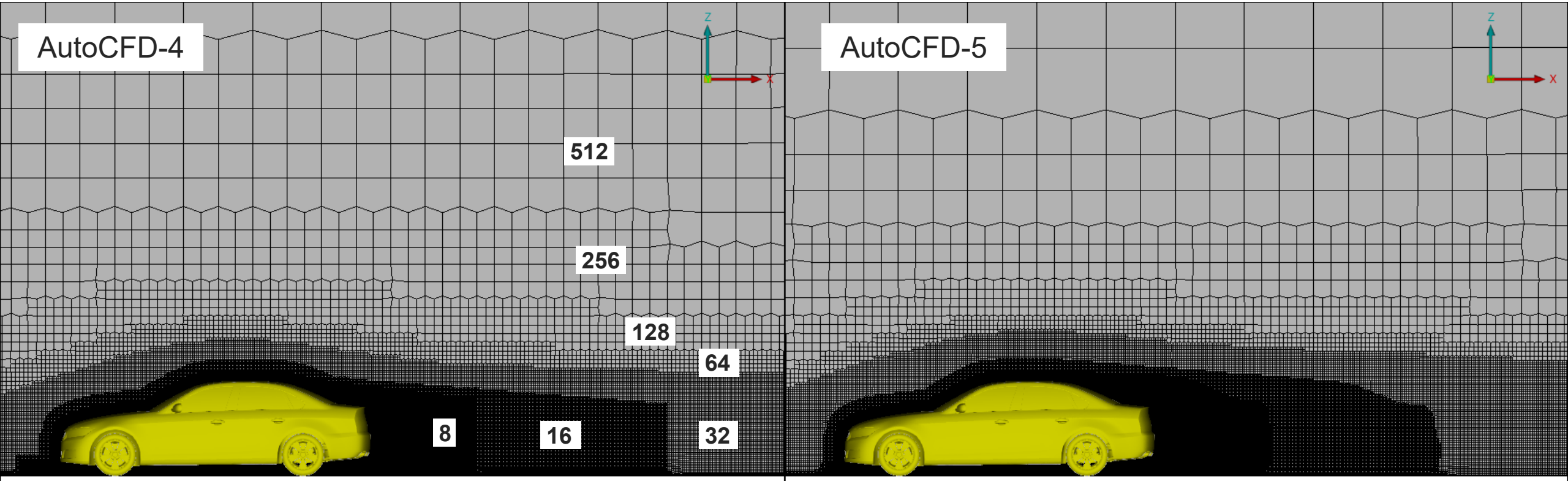
Volume mesh



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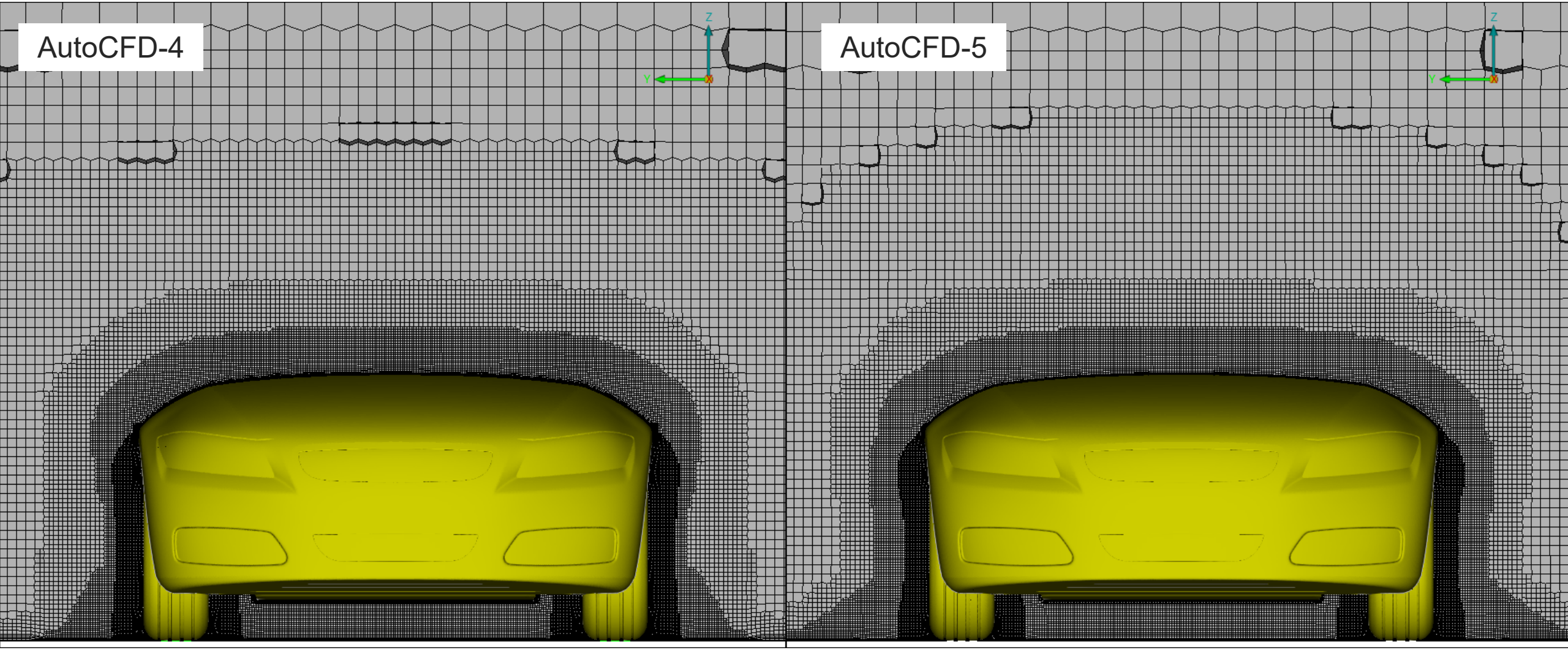
Volume mesh at front wheel axis



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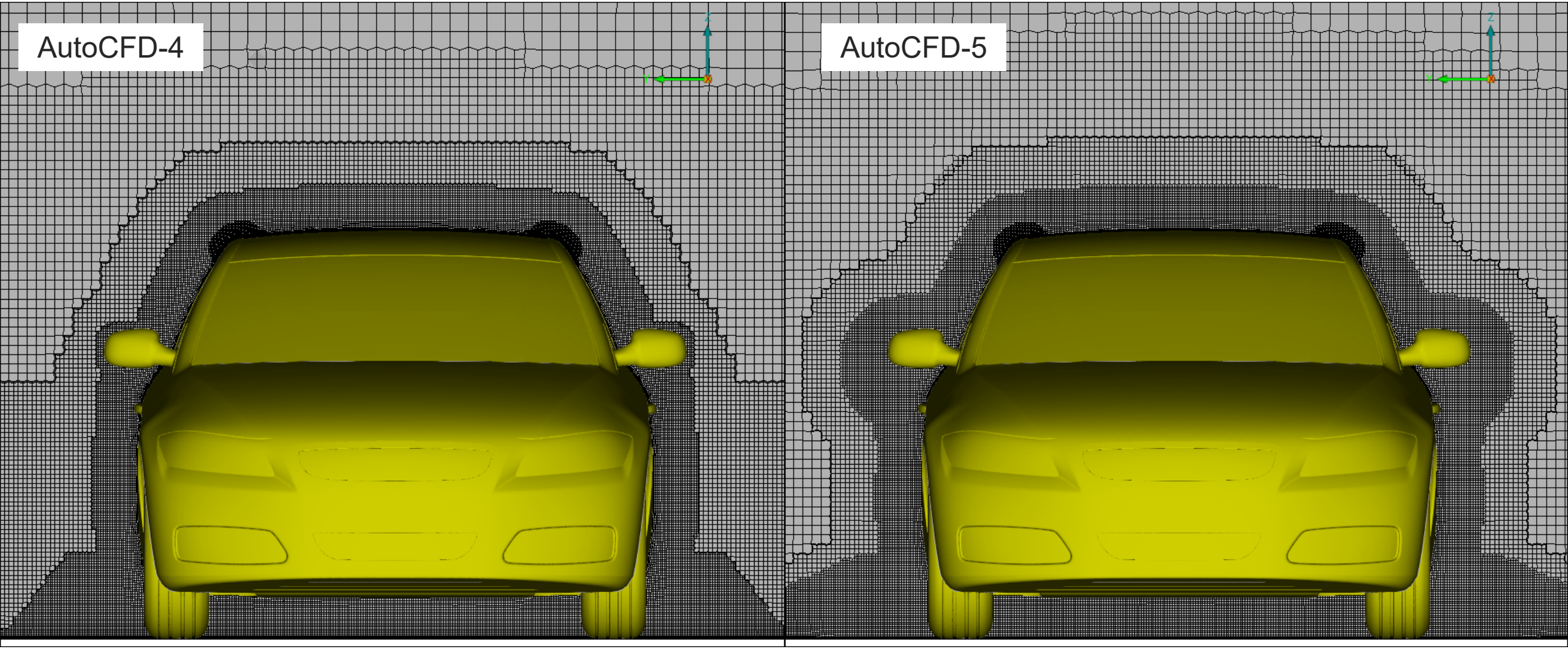
Volume mesh at B-pillar



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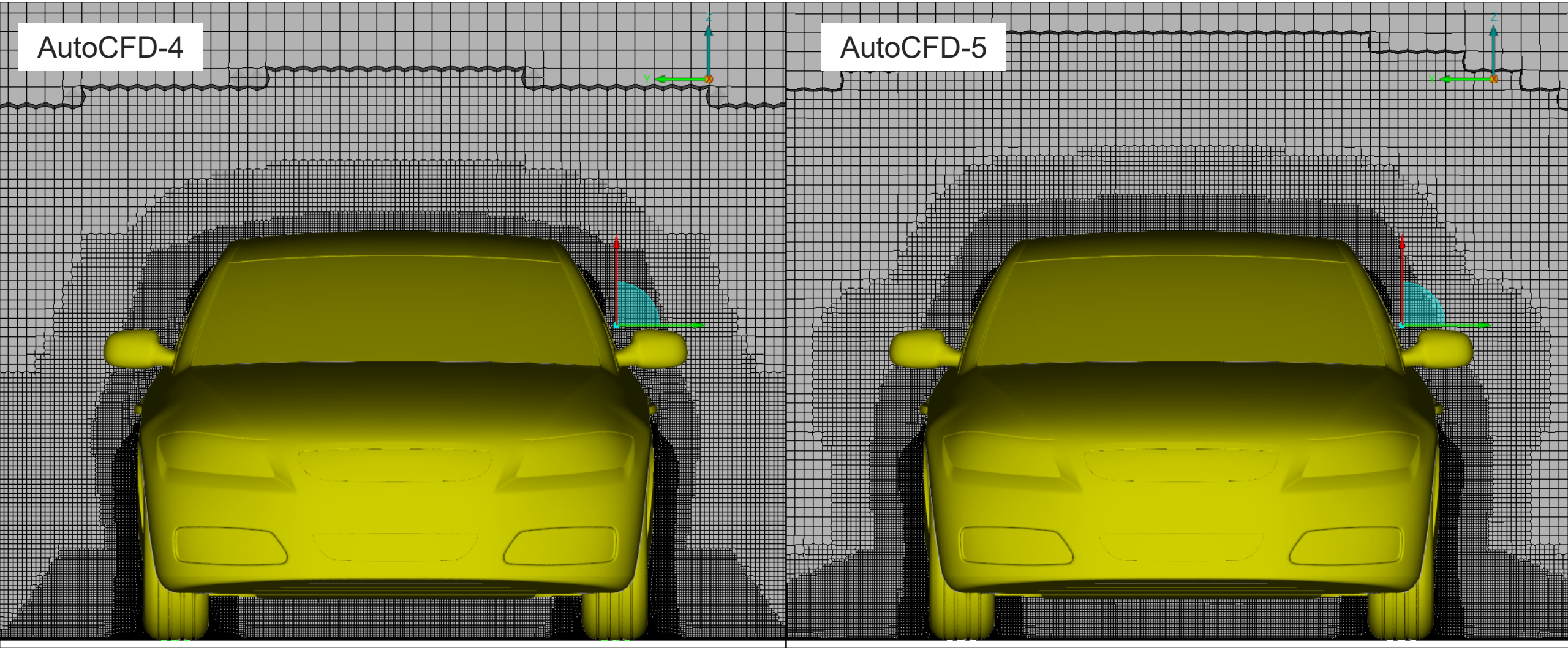
Volume mesh at rear wheel axis



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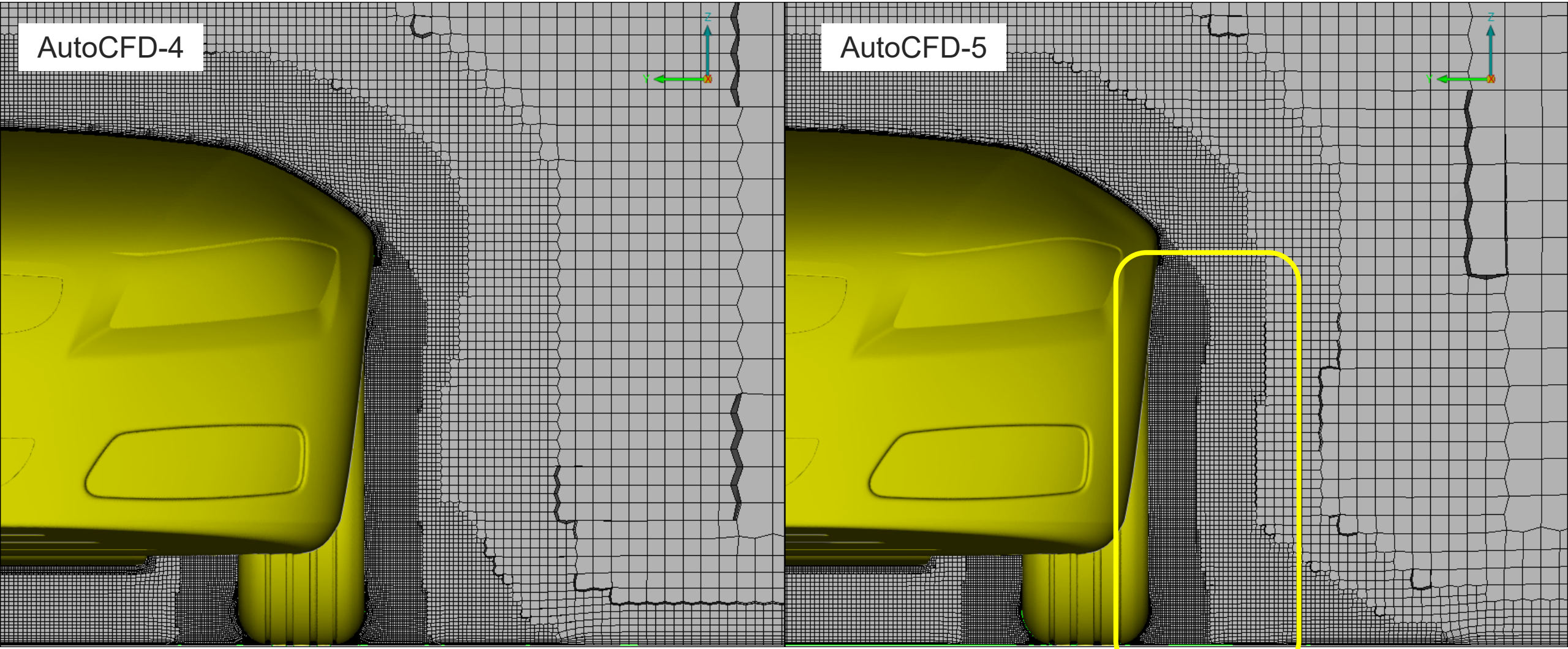
Volume mesh at front wheel axis



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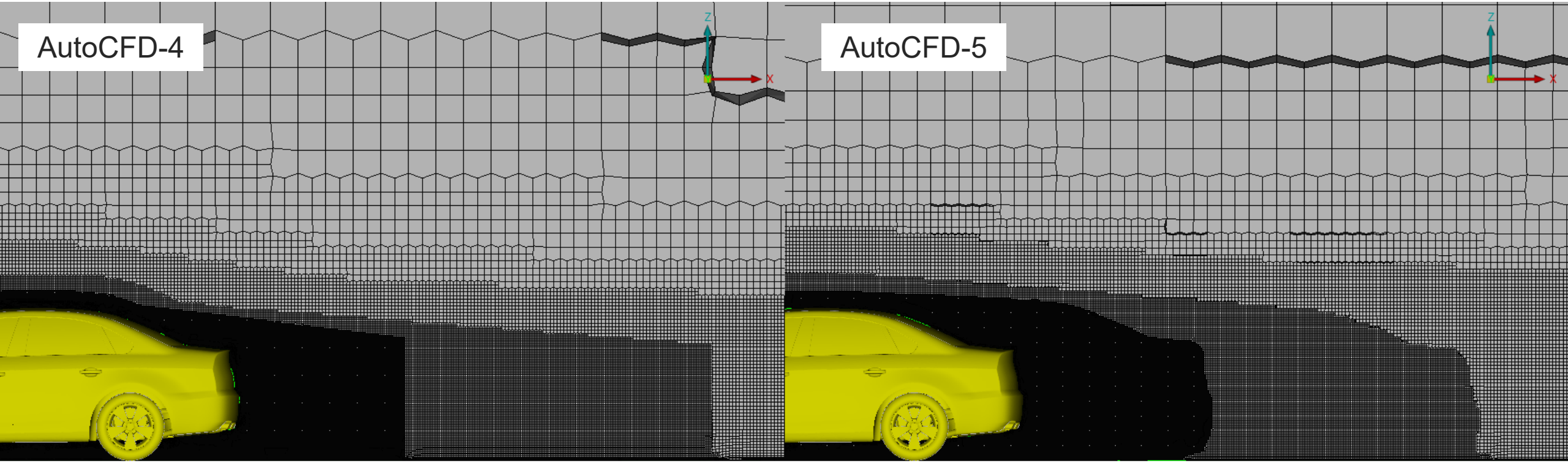
Volume mesh – Size Boxes replaced by Surface Offset size rules



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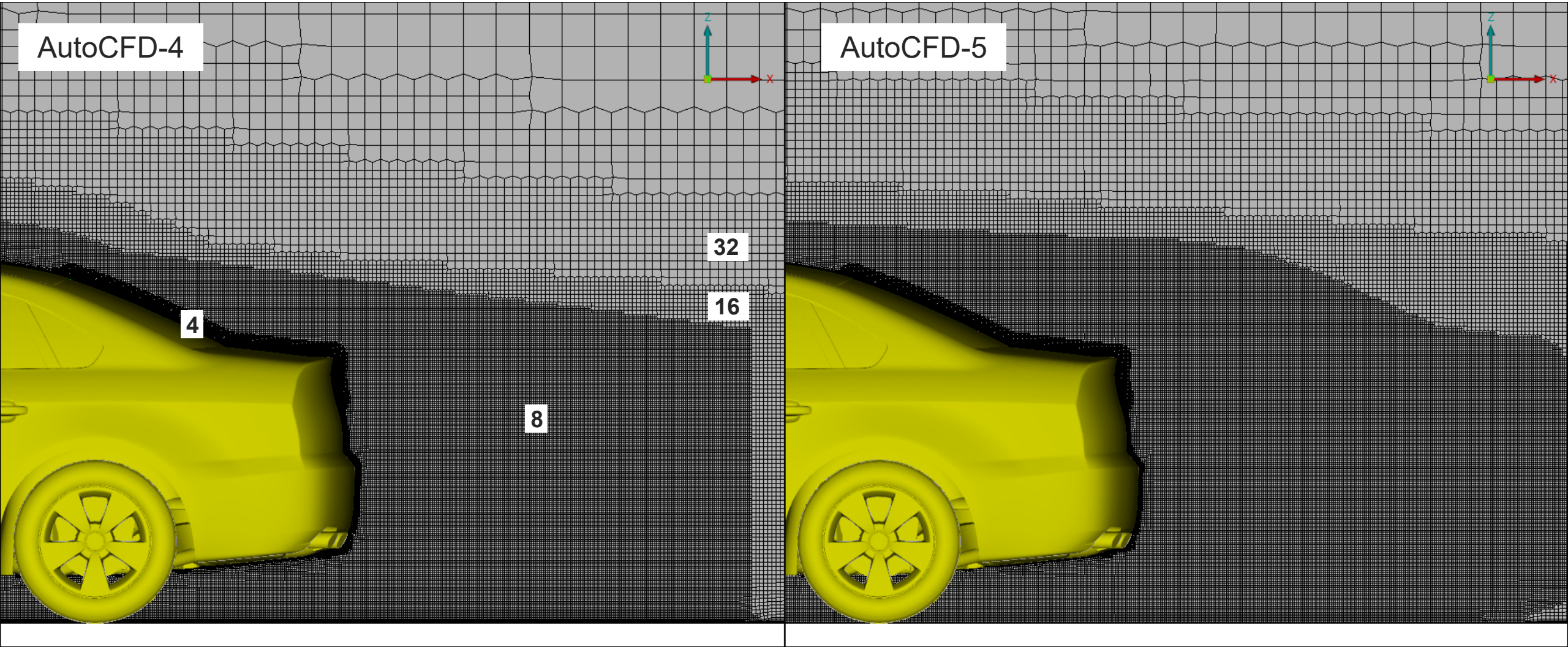
Volume mesh – Size Boxes replaced by Surface Offset size rules



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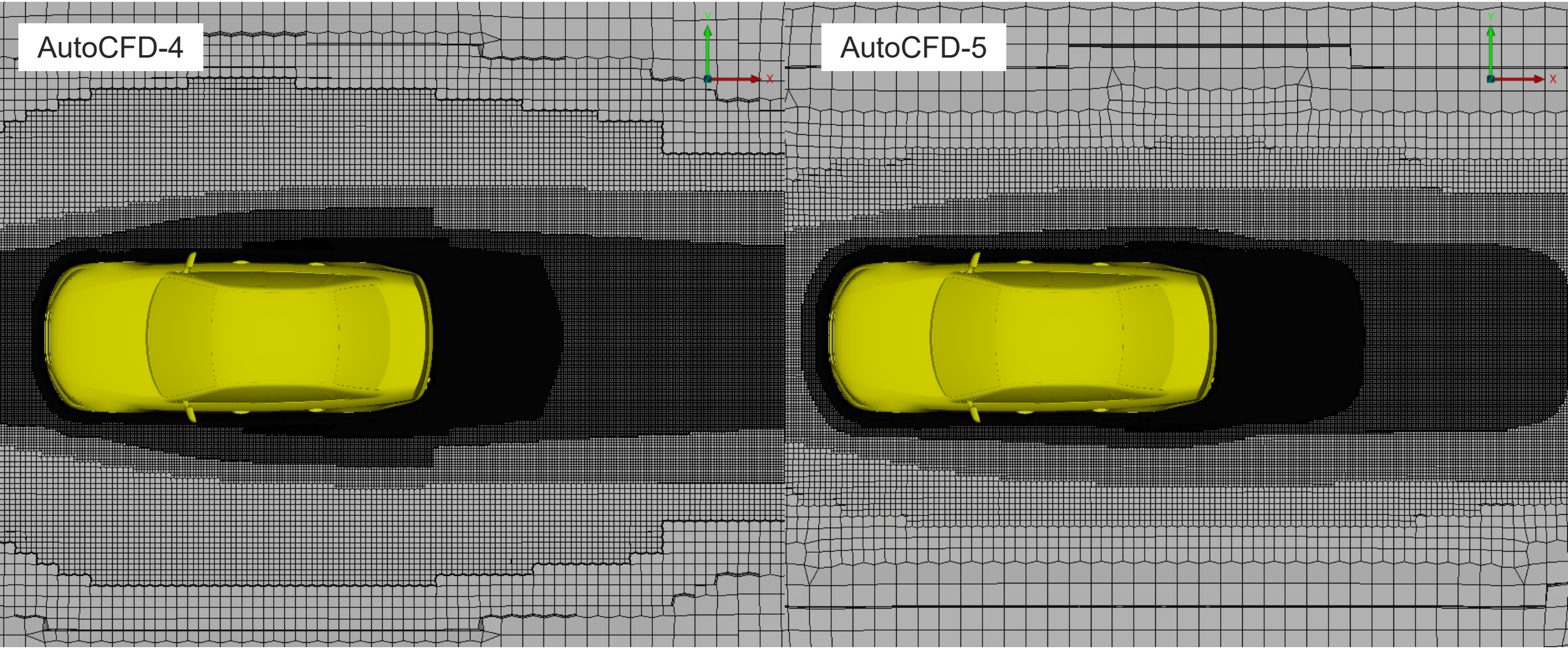
Volume mesh – Size Boxes replaced by Surface Offset size rules



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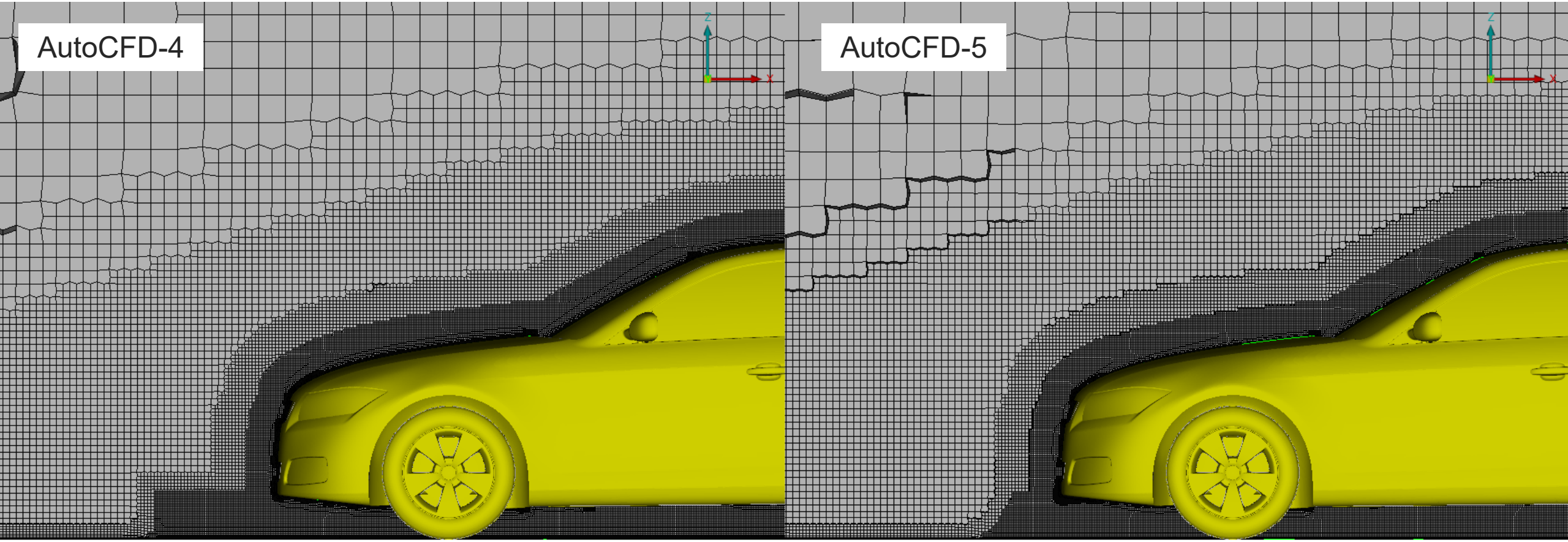
Volume mesh – small reduction of upstream lower refinement area



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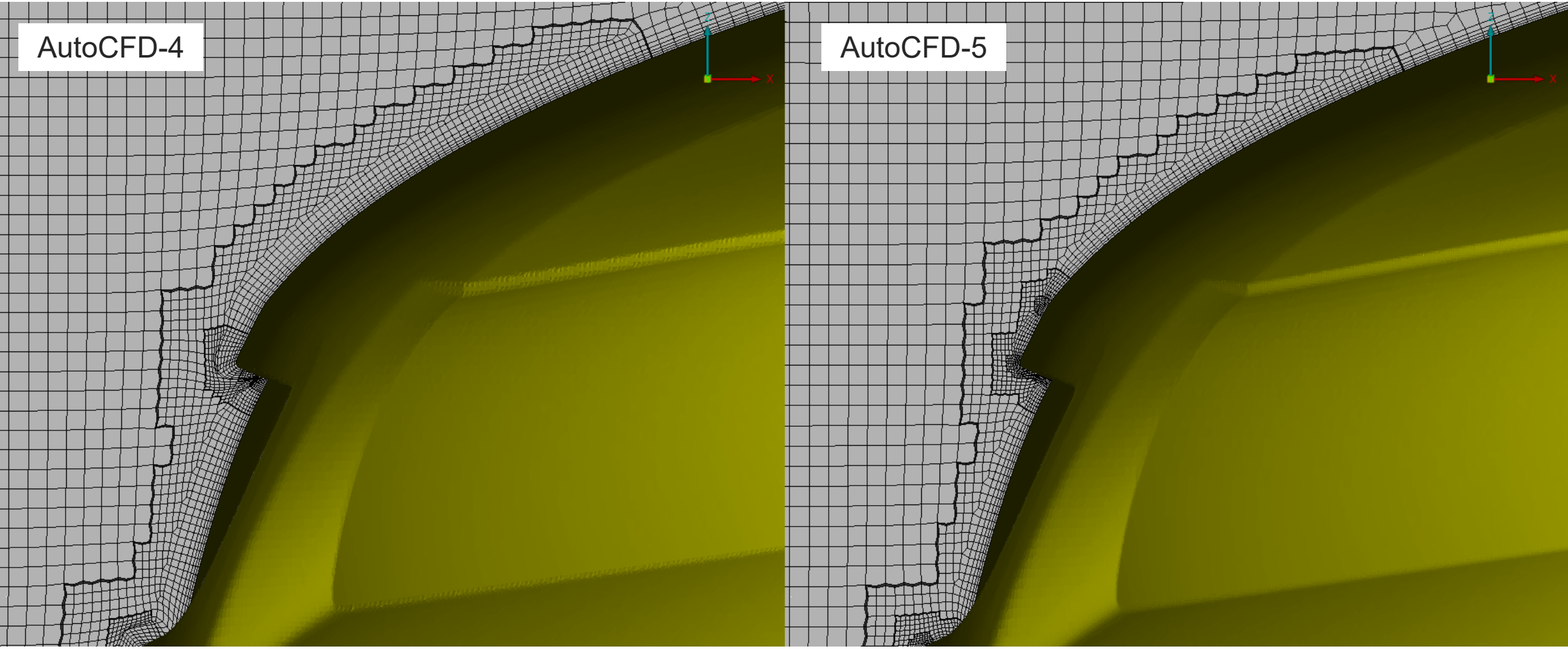
Volume mesh – reduction of N layers from 7 to 5



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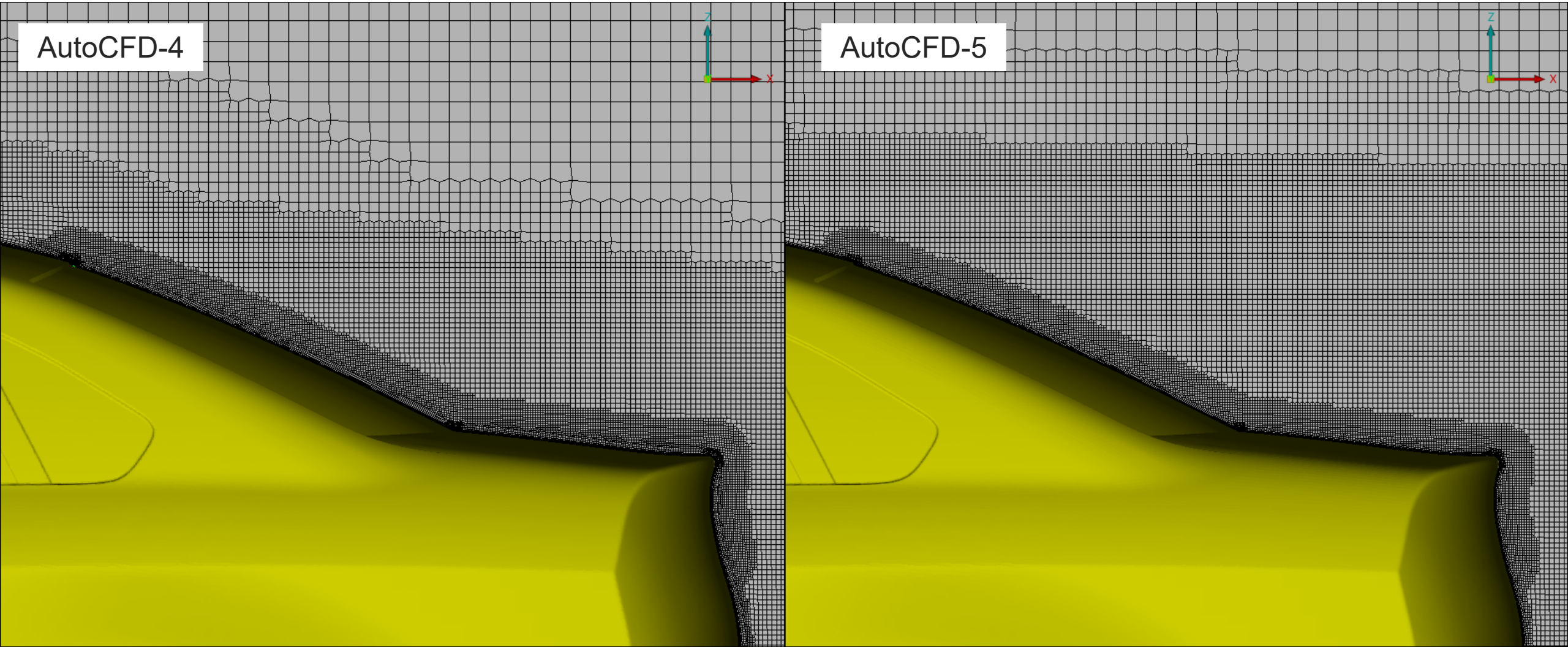
Volume mesh – reduction of N layers from 7 to 5



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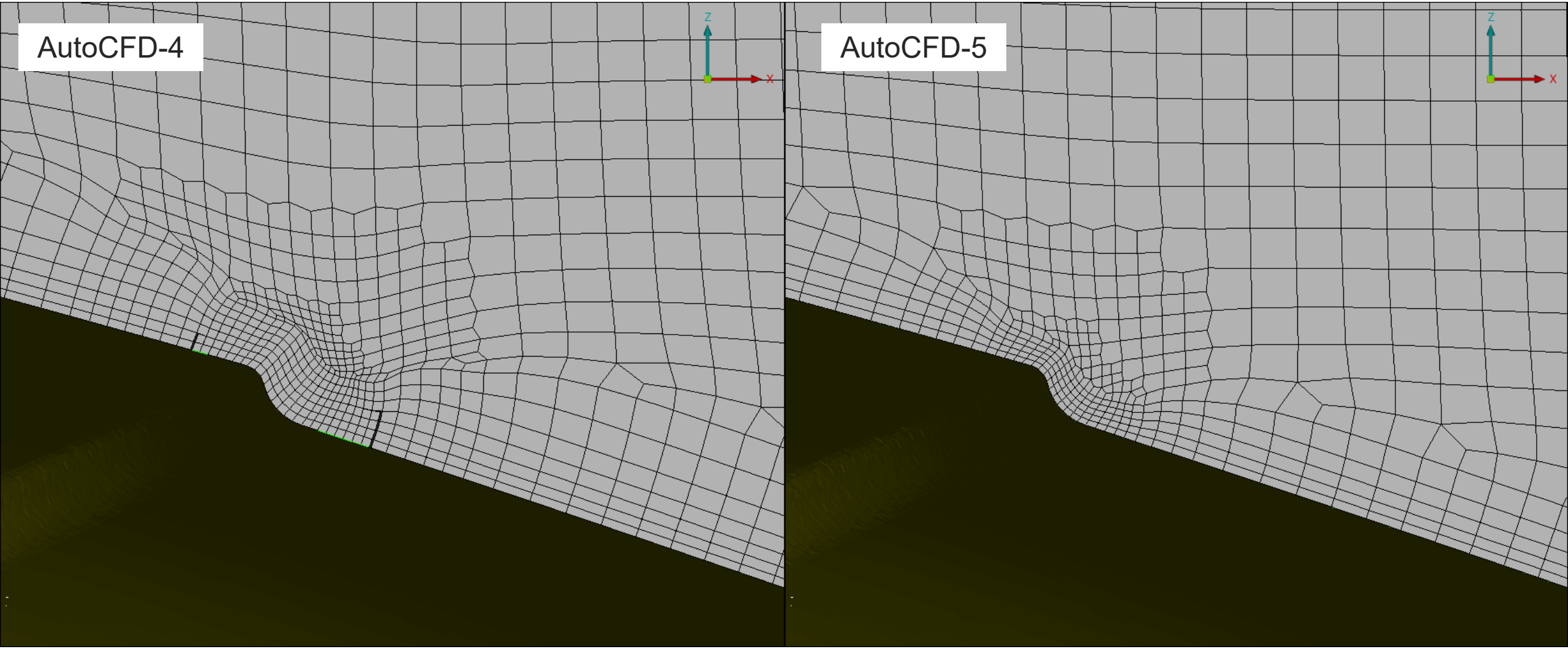
Volume mesh – reduction of N layers from 7 to 5



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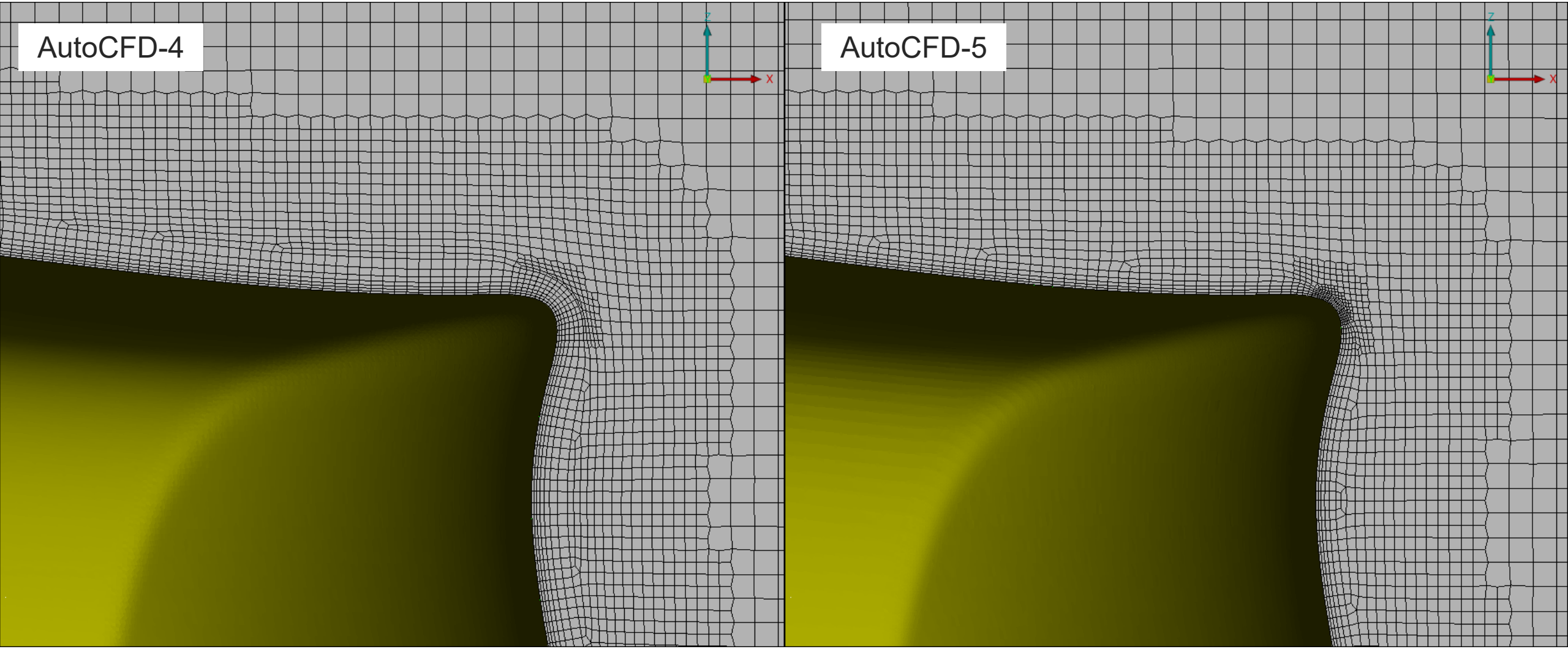
Volume mesh – removal of offset refinement and finer curvature



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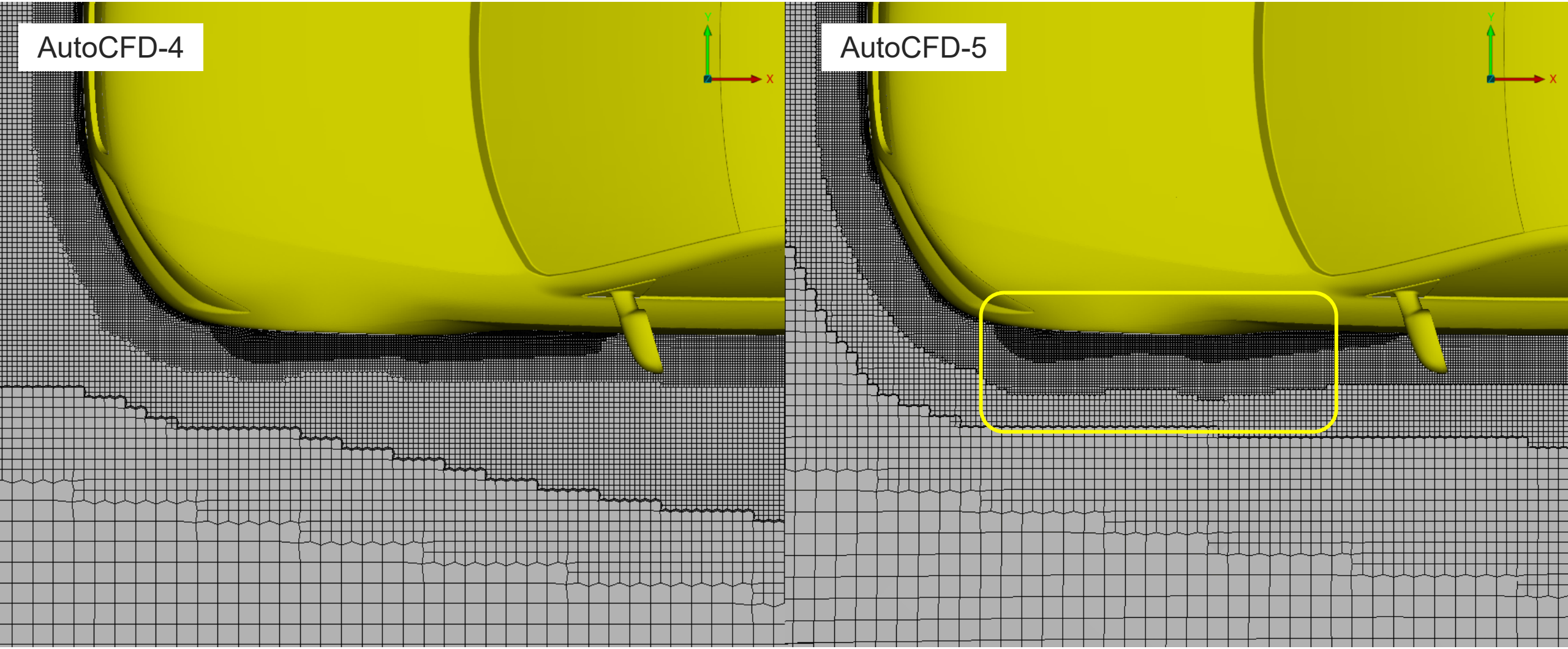
Volume mesh – widening of refinement near front wheel



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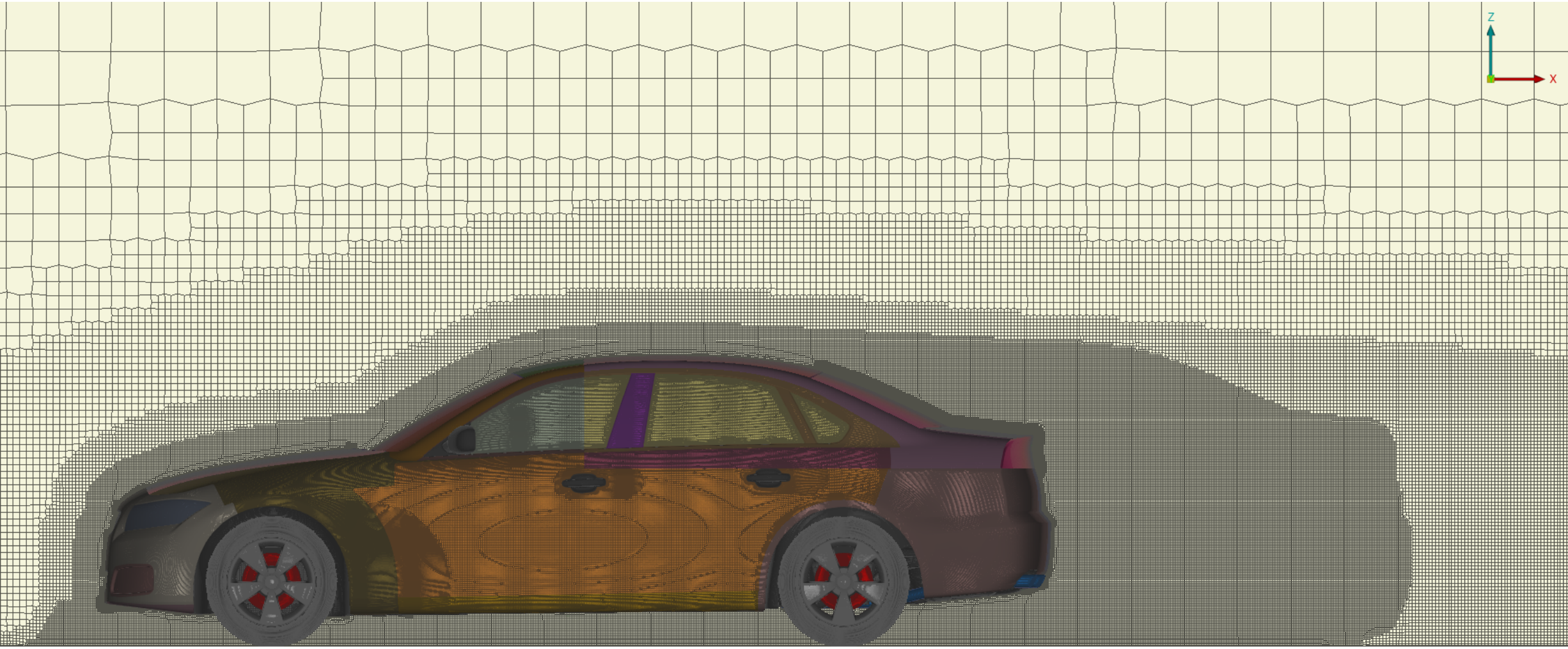
AutoCFD5 – Notchback baseline



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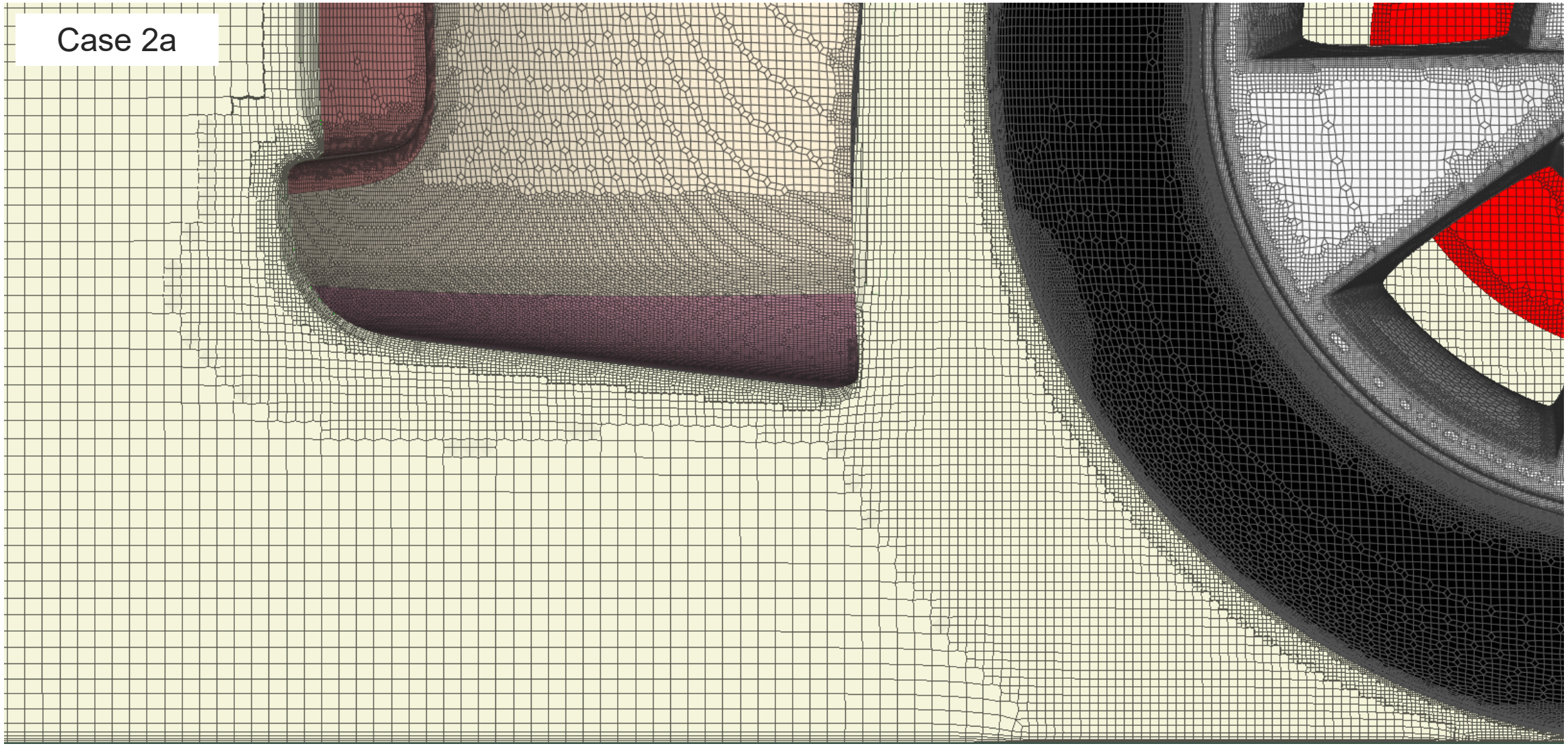
Volume mesh – consistency between variants



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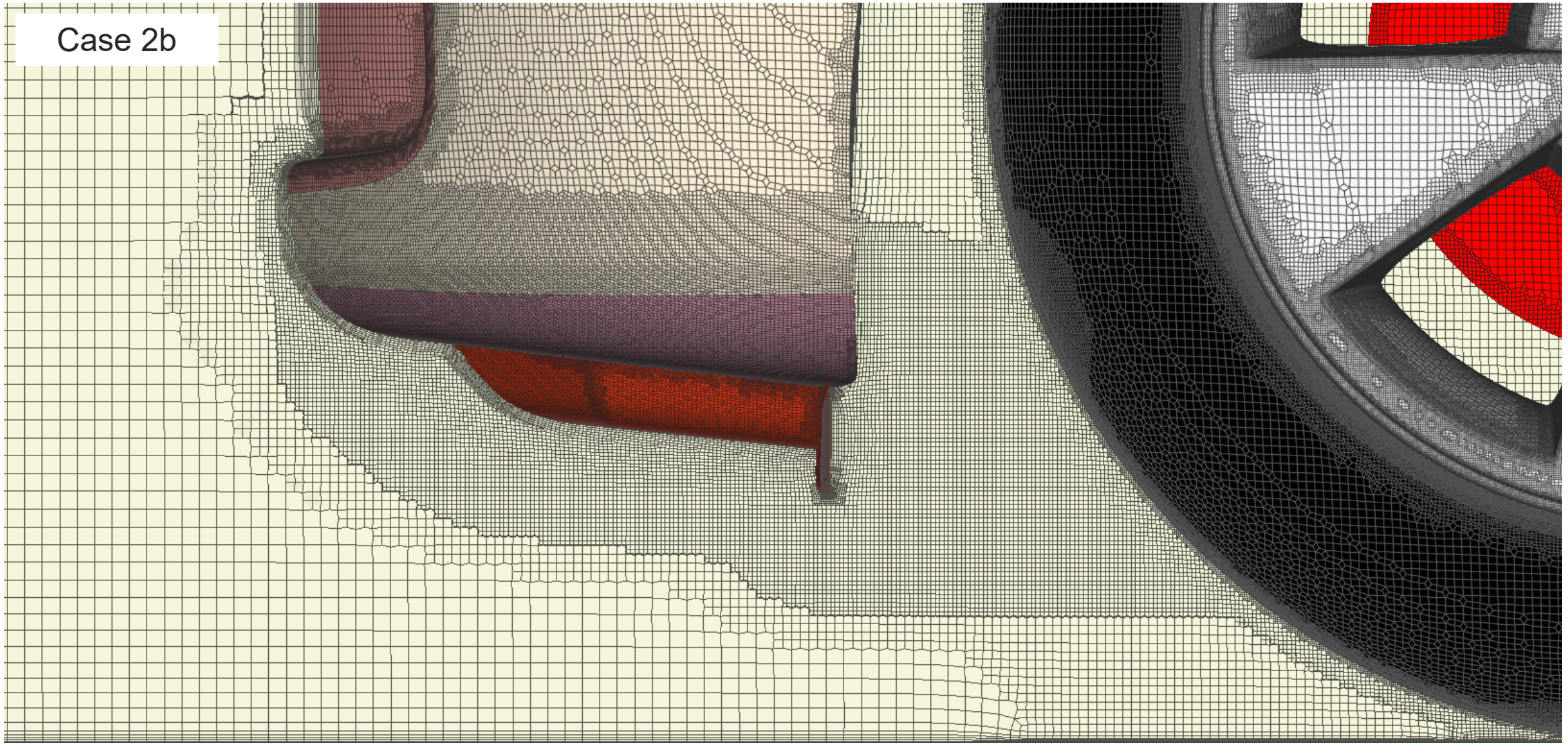
Volume mesh – consistency between variants



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Summary of new meshes available for download for AutoCFD-5

All files are in meters

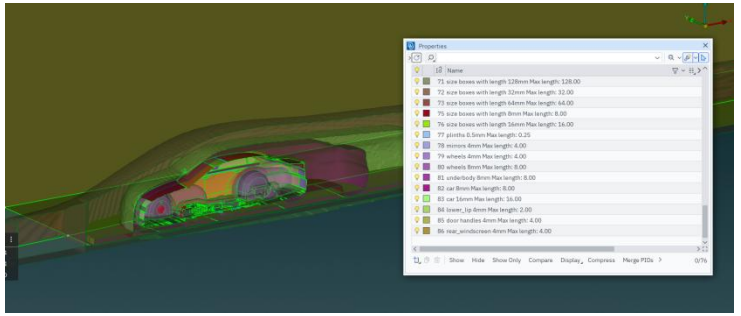
- Volume meshes ready to run in the following formats:

	OpenFOAM	Fluent	CGNS
Case 2a – Notchback baseline	✓	✓	✓
Case 2b – Notchback with deflectors	✓	✓	✓

Note: Check the PID names if you are using previous setups, as there have been some renamings.

- Model geometries available in STL format together with 3D descriptions of refinement zones in space. Each iso-surface is named according to the max length it imposes

Model Geometries	Refinement Zones
DrivAer Notchback baseline	DrivAer Notchback baseline
Additional front wheel deflectors	Refinement zone of wheel deflectors



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