CFD analysis of trailer-truck with and without v-spoiler – Extra (Height and width of trailer changed)

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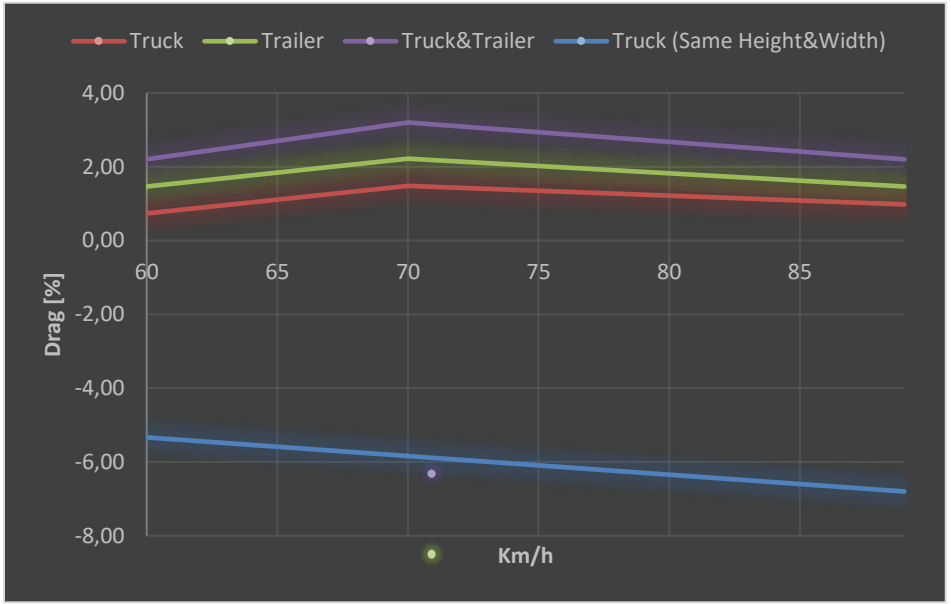
Extra Outline

- Trailer has been made 5cm short on each side to align with sides of truck. Same with top of trailer.
- The simulations converged in a steady state with same settings as the original simulations.

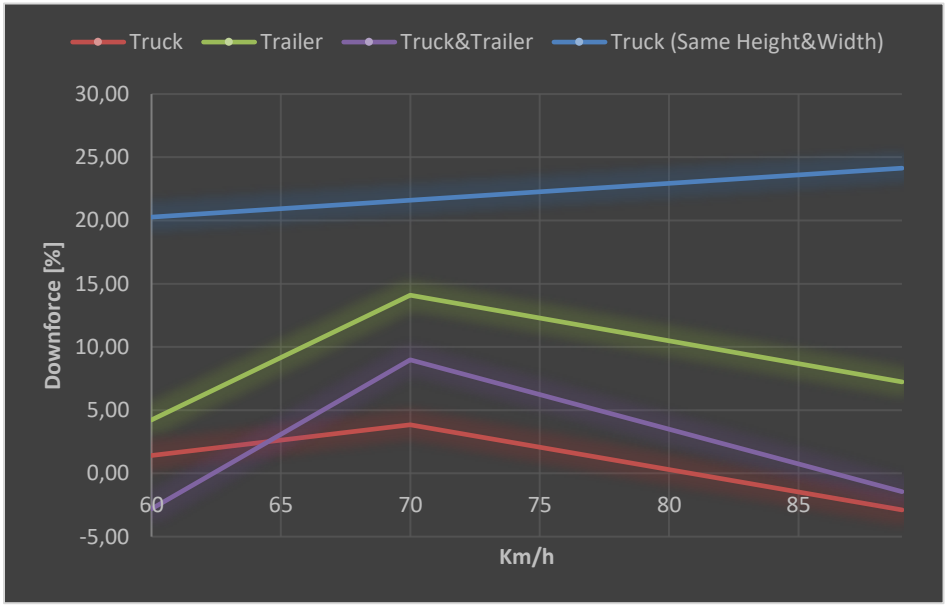
Results - drag

- The graph shows the drag difference by placing v-spoiler on Truck (red), Trailer (green) or both truck and trailer (purple) – these numbers have been taken from the previous report.
- The blue line shows the drag difference with V-spoiler placed on the Truck with the adjusted height and width of the trailer.



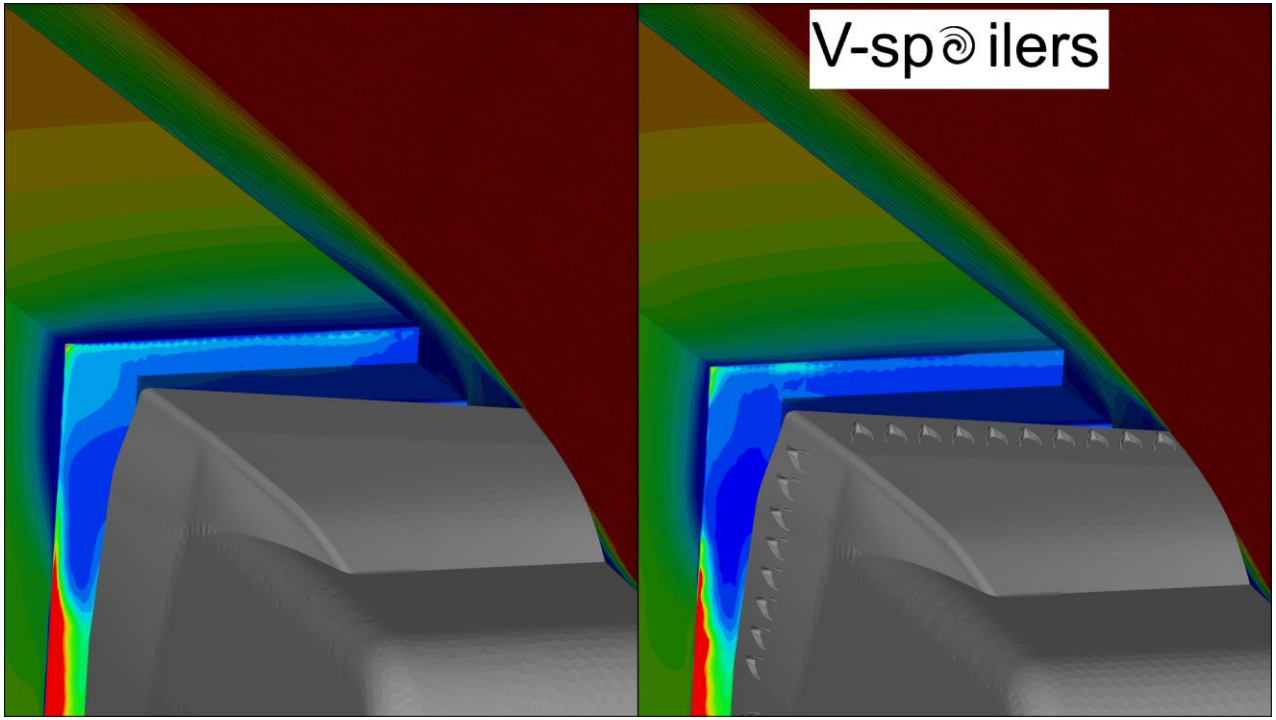
Results - downforce

- The graph shows the downforce difference by placing v-spoiler on Truck (red), Trailer (green) or both truck and trailer (purple) – these numbers have been taken from the previous report.
- The blue line shows the downforce difference with V-spoiler placed on the Truck with the adjusted height and width of the trailer.

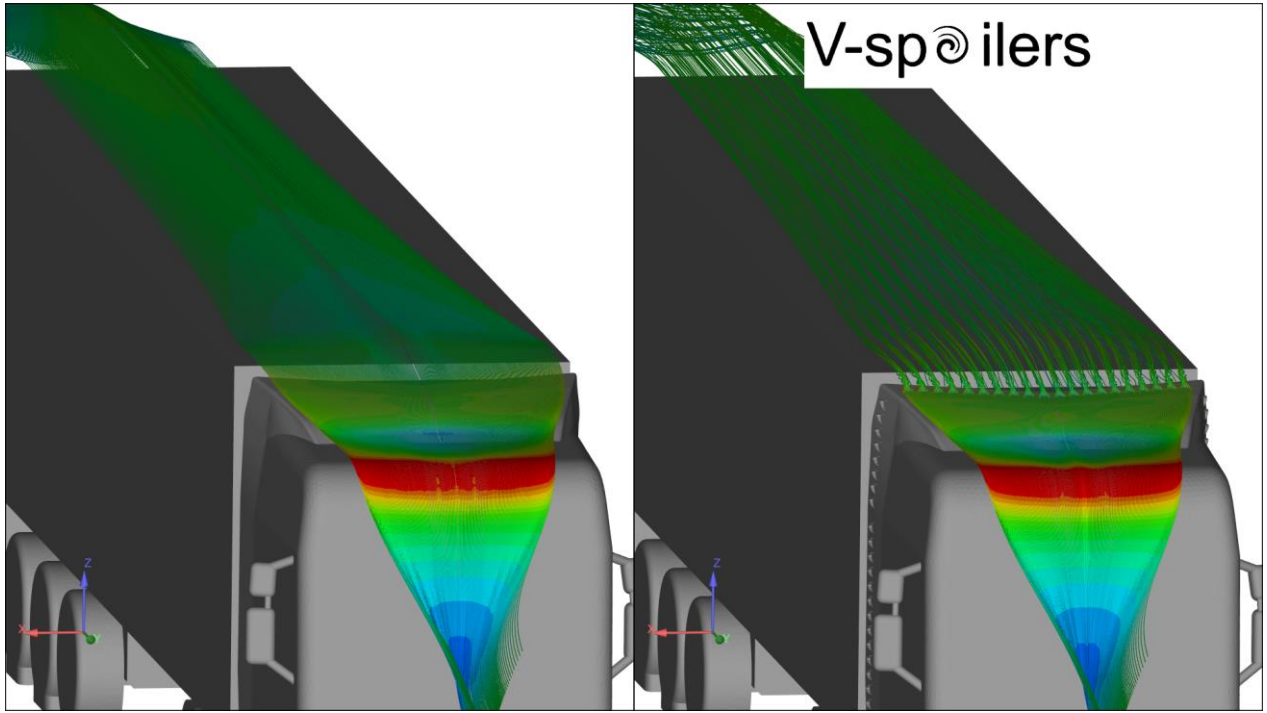


Results – streamlines focused on lower part + video

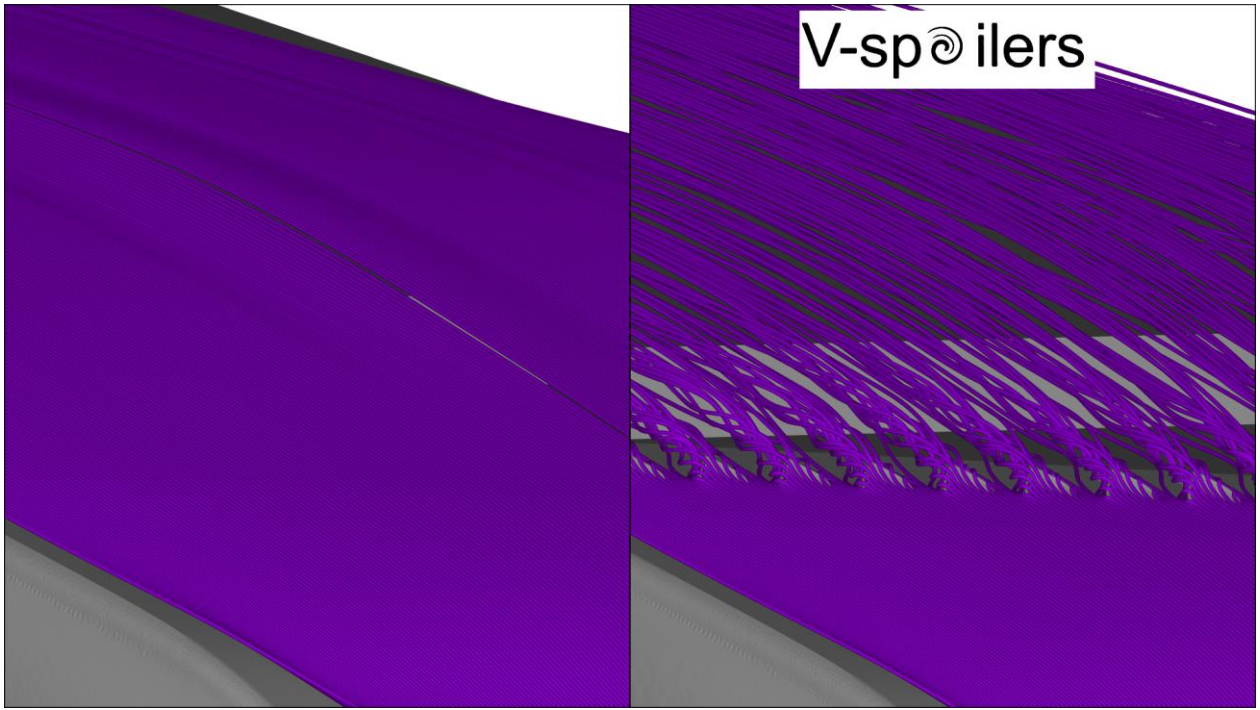
Results – pressure on trailer and velocity contour on midplane with streamlines



Results – Streamliens focused on top + video



Results – Streamlines focused on top zoom



Conclusion

- By changing the width and height of the trailer to align with the truck the analysis show a significant drag reduction 5-7% together with a significant downforce increase 20-25%.
- The results was double checked with a new turbulence model: GEKO
  - This showed a drag reduction of between 5-6%