

AERO 101

Greetings! Welcome to the fourteenth segment of Aero101. We'll be covering the aerodynamics of the Tilton Interiors Evo, which won the Pro Class with a 1:24.84 and set a new WTAC record!

Let's take a look at the front of the Tilton Interiors Evo.



Here we can see the aero package Voltex has created. The front bumper features 2 sets of very large canards, which can be removed to balance the aerodynamic balance (Tilton actually did this in an effort to reduce downforce and maximize speed down the straights). Notice the shallow angle of the canards. The common misconception is that the canard's main purpose is to create downforce. They do create downforce, but their purpose is

to shed vortices that seal and affect the rest of the car downstream. The shallow angle also ensures that the vortices don't interfere with rear wing performance. The middle of the splitter has a slightly raised area, to ensure that the underside is always fed with air, even under hard braking. Despite running a smaller splitter than most teams, the Tilton Evo was faster than the whole field. Most likely, the overly large splitters were creating more drag and lowering efficiency. Voltex seems to have found a balance between downforce and drag with their package. On the edge of the splitter are ramps and endplates. The ramps direct air towards other parts of the car. We believe this could be used to help straighten out airflow coming off the wheels and tires. The endplates are slightly angled outwards, to induce an outwash effect. The side sills are also visible in this picture. The sills prevent air from flowing underneath the car. The turbulent air from the wheel wells is vented by the fenders and is sealed from the rest of the air on the sills by a strake. At the rear of the sill is another canard, right before the rear wheel.



The Tilton Evo sports a large diffuser and rear wing. Notice that the wing mounts are solid, contrary to so many designs with cut outs. This is drag reduction! The endplates are large to maximize the performance of the dual element wing. There is also a rear spoiler, to add more downforce from the air traveling down the rear windshield. The rear diffuser looks to start at the rear axle, and is exhaust blown. Remember, the high energy of the exhaust flow helps keep flow attached to the diffuser, creating more downforce. The only thing we can't see is the underside, which could sport a flat bottom or tunneled undertray.

Pic source: worldtimeattack.com

