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Having a carbon wing instead of the traditional aluminum one has functional advantages besides looking cool and high-tech. Sure, you see plenty of pretty generic shapes on street cars and even track cars. But well-designed carbon wings can be optimized to the aerodynamic properties of a specific race car. This wing, which is essentially an airfoil in reverse, can be designed to have small lips at the end or have a complex shape in two or three dimensions that would be almost impossible to do with a metal alloy like aluminum.

For manufacturers and end users alike, a well-made carbon wing does not require any additional prep after it is removed from the mold. If the manufacturer has correctly done his job, a carbon fiber component will be free of bubbles and have a perfectly smooth finish, which will aid the aerodynamic properties of this race car component. Of course, painting a carbon fiber part is perfectly possible and many people have been fooled by cars that have painted carbon fiber bodies that look like OEM finishes. And speaking of bubbles, one cannot accept even minute imperfections in an important aerodynamic component like a rear wing in a race car. Bear in mind that the wing has to strike that delicate balance between providing enough downforce to help the carâ€™s grip but at the same time not have too much that top speed is affected. With an optimized 3D airfoil shape, a properly designed wing works very well for high speed motorsport applications, supplying the needed downforce without causing excess drag. This is why it is common to see race cars that have adjustable wings, so that the technicians or engineers can suit a carâ€™s aero wing to a particular track.

If a carbon fiber wing has bubbles at the surface, it could be an indication of more imperfections between the resin and the carbon cloth, meaning a weak bond. With enough downforce, a weak carbon fiber wing can collapse or buckle at high speed, causing a drastic change in handling that will catch the drive off guard. Even the best driver with the quickest reactions will find it very difficult to compensate for a suddenly unpredictable vehicle. One has only to read about recent racing accidents to see that despite all the safety precautions, fatalities still do happen in motorsports. Which is why for stuff like an aerodynamic wing, one should only use a proven manufacturer whose product have been tested in actual racing.

That carbon fiber weighs significantly less than a similar metal component is a well-known fact. The modern-day miracle of carbon fiber technology is that this lightness does not equate to fragility. Carbon fiber is know to be as strong as mild steel at the very least and with it replacing aluminum as the material of choice, a carbon wing will give you a better shape, less drag and lighter weigh with higher strength over aluminum.

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