

# BLACK MAGIC

The seats used in BMW Team RLL's Z4 GTE race cars don't come from Germany or even the U.S. but from New Zealand, where Racetech mixes carbon composites into innovative safety components.

By Kevin Clemens Photography by Kevin Clemens

**I**f you have a chance to look inside one of BMW Team RLL's Z4 GTEs, you might notice that it has an unusual driver's seat, one whose shape and mounting is unlike any other you've ever seen. The seats come from Racetech, a small New Zealand company chosen by BMW to provide its innovative carbon fiber safety seats to the new Z4 GTE racing program.

Working from a medium-sized workshop in the town of Petone, in the Lower Hutt Valley on the North Island of New Zealand, Racetech's 15 employees and boss David Black build each seat from scratch in-house. Racetech produces the composite seat backs (with help from a laminate expert who worked on the New Zealand America's Cup sailing program), molds the energy-absorbing foam for the interior of the seats, sews the covers and even stamps the steel inserts and brackets that mount the seats to the car. Over 100 individual parts go into each seat, and every one is made in the shop in Petone to ensure quality, consistency and performance.

Lots of companies make high-quality seats, so what led BMW to choose its chairs from a fairly obscure manufacturer far from Germany or North America?

First, Black himself has a long history in motorsports; he was a motorcycle enduro champion and a well-known driver in rally cars, competing at the highest levels in his native New Zealand. In the 1990s, he ran a business that supplied competition accessories to Kiwi rallyists, and at the end of that decade he bought the fledgling Racetech seat company from its founder and moved its operations from Christchurch on the South Island to his home near Wellington on the North Island.

In 2001, Black brought his Racetech seats

to the Performance Racing Industry (PRI) show in Indianapolis. His exhibit was noticed by a supplier to Chrysler, who mentioned Racetech to his contacts in the motorsports division. Chrysler was in the process of developing the Viper Competition Coupe, and Racetech offered just what the motorsports group at Chrysler was seeking.

"We were a small company, we were nimble and we could test to the latest FIA standards," recalls Black.

Working with Chrysler's motorsports team and a range of safety experts, Racetech came up with a fiberglass composite seat for the Competition Coupe that was strong and safe and met the existing FIA safety standards, and it completed the entire program in just six months.

The Viper program ended up teaching Black a great deal about how to safely hold a racing driver in place during a major collision, and that knowledge has become Racetech's philosophy for racing seat design.

"Almost all of the mass of a male is in the upper torso, and you need to catch that in a side impact," Black explains. "To control that, you don't want to transfer the load to the floor; you want to be able to catch it and transfer it to the chassis at a high level."

To accomplish that, Racetech's seats don't just mount to the floor of the car; they also have internal reinforcements across the back and tie directly to the race car's roll cage at the driver's shoulder height.

The Dodge Viper seats were a success and have since become popular across the motorsports spectrum. In 2006, the Subaru World Rally Championship team began using Racetech seats, and many competitors in Australian VS Supercars use them, too.

"A lot of stock cars here in New Zealand are using that Viper seat because it can with-

stand huge side hits. We've actually measured over 80 g's in a side impact, and the driver has gone out and driven in the next session," says Black.

Racetech began working on the BMW Z4 GTE program in 2012, when the German company needed a seat that could meet the current FIA standards while being ultra-light in weight. Black had helped the FIA write the most recent standards, many of which were based upon the performance and safety of his seats, and Racetech offered its competition seats in lightweight carbon fiber as well as more economical fiberglass. The latest seats also have the ability to pipe cooling air into the seat back, improving driver performance in long endurance races.

## Improving fit and feedback for the driver

Beyond safety and comfort, BMW was swayed by Racetech's unique mounting system, which attaches the seat directly to the roll cage at shoulder height and thus puts the driver in closer contact with the car's chassis.

"We get feedback from a lot of drivers that they feel more a part of the car when they use our seats," said Black. "That was part of the reason that BMW came to us."

BMW Team RLL driver Bill Auberlen agrees: "As a sports car driver, you are always dealing with how a seat communicates what the car is doing. In most cases, the seats are mounted on tracks to adjust to the different size drivers that may be in the car. This does not allow for the seat back to be fixed to the car, and since the seat is not permanently attached, you can get a very sloppy feel."

Using the Racetech seat, Auberlen said, eliminates that slop. "Our Z4 GTE incorpo-





**(Top) David Black in Racetech's New Zealand production facility. (Bottom, from right) A custom insert can be added to the standard foam seat pad. The raised ridge in the seat back provides firm mounting to the cage at shoulder level. A Racetech seat installed in a BMW Team RLL Z4 GTE racer.**

rates a movable pedal assembly so the seat back could be attached to the car. The Racetech seats have incorporated attachment points in the seat back to fix the seat to the roll cage. Now the driver feels he is an integral part of the car. Everything comes right through your butt and your hands."

That's especially true since BMW Team RLL worked on customizing the seating area

itself to complement the seat placement and pedal position, fitting new insets for each driver at its shop in Ohio.

"The Racetech shell eliminates the mounting compromise, but we found the inside of the seat could be improved to better fit our team's drivers," Auberlen said. "We have recently taken the additional step of refoaming the insert in the seats. While it's

an expensive step, a proper-fitting insert is the second part of the equation to allow a driver to maximize his effort whether for one stint or 24 hours."

And should he need the protection, Auberlen's seat has been certified to meet the latest FIA standards for driver safety, having been proven in motorsports (and motorsport crashes) around the world. No matter where they end up, every one of those seats still comes from a small shop on New Zealand's North Island, built by a small group of craftspeople who have changed motorsports from way Down Under. 🚗