



THE CARBON MONOCOQUE OF THE PORSCHE 918 SPYDER WILL HAVE THE JUDGES REACHING FOR SUPERLATIVES.

IN FINE FORM

The race-car material CRP, a carbon fiber-reinforced plastic, lends striking properties to the Porsche 918 Spyder: low chassis weight, high torsional stiffness, and outstanding driving dynamics.

By Eckhard Eybl
Photo by Steffen Jahn

O verly intense flashes can elicit the brilliance of diamonds from the material CRP. When the dark carbon structures reflect the flashes of light like mirrors, the exquisite carbon fiber-reinforced plastic sparkles like a flawless jewel.

What is it that transforms the carbon fiber monocoque into a Porsche? Design, construction, and production, as always. CRP sets off into the next generation in the 918 Spyder, away from the carbon fiber tub function in playful shades of black. In addition to the monocoque, the load-bearing structure of the 918 includes the front suspension supports, the frame for the engine and the rear axle, and a function plate in the rear—all of it, naturally, manufactured entirely of carbon fiber.



“The functional integration of our carbon fiber chassis is much greater even than in the now-legendary super sports car Porsche Carrera GT or current competitors,” note the experts on the 918 Spyder core team, Eduard Ene, Martin Schromm, and Oliver Stoffels. The 918 Spyder has to accommodate two energy depots, the fuel tank, and the battery unit,

in a central position close to the center of gravity, along with other components of the intelligent hybrid system. For its part, the carbon fiber is called upon to balance out the roughly 300 kilograms (660 lbs.) of extra weight in such elegant fashion that this technological heavyweight tips the scales as a trim middleweight.

Beyond black brilliance, the extraordinary properties of the carbon fiber-reinforced composite plastic CRP coalesce in exceptional stiffness and stability. Porsche adopts a practice common in race-car design by thinking of driving dynamics from the inside out, that is, from the monocoque and chassis. Their high torsional stability in conjunction with the equally high connection stiffness of the suspension is indispensable for a stable suspension geometry. The carbon and monocoque, as they’re known in the lingo, enable the 918 Spyder to achieve driving dynamics that raise the performance-standard bar once again.

One of the findings from previous sports-car projects with carbon monocoques, the Carrera GT and the LMP2 race car RS Spyder, was the significance of speed. For the V10 mid-engine sports car, production time for a single

carbon monocoque was just over five days. In creating the 918 Spyder prototype, however, the development team took its cues from the race-car pacing of the development center in Weissach. The time between approval of the data to delivery of the first parts is roughly as fast as for the successful American Le Mans race car RS Spyder.

Anyone who sprints off the blocks like that should keep a heady speed right through to the finish line. Thanks to a refined integral RTM process, Porsche can now produce five to seven carbon monocoques for the 918 Spyder each day. The process requires an elaborate, six-part steel tool the size of a room to unite the exclusivity of hand-laminated preforms with highly precise manufacturing.



When you go to as much trouble to save weight as Porsche has with the 918 Spyder, you don’t want to ruin the effect with superfluous appointments. The hybrid super sports car comes without such accessories as interior upholstery or floor mats. But wherever possible, the surfaces are refined with visible carbon that can sparkle like a polished diamond. 918 carats’ worth.