



Frankie Andreu

The concept of using magnesium to build bikes has long been known but there has always been the problem of how to work with this volatile material. Segal is one of only a few bike manufacturers that has mastered working with magnesium. Segal is based in Israel and in order to control quality, it doesn't outsource its manufacturing to different foreign factories. All their bikes are exclusively designed and manufactured with magnesium in Israel. Segal's top of the line road bike uses magnesium ZM-21F, a specially treated alloy, which allows them to produce an incredibly stiff and very light road frame. In fact, magnesium is 33% lighter than aluminum and 50% lighter than titanium. Magnesium also has more strength per gram than aluminum, steel, and titanium allowing Segal to compete with some of the lightest road bikes on the market.



"During high speed criteriums or flying downhill, the road bike rides excellent"

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The bike I tested, a 60cm Classic, was equipped with Sram Red and Zipp 303 tubular wheels. The Segal's tube shapes are very specific to the design and ride integrity of the bike. They are oval and flaring at key transition areas or beefy and thick at high stress points. These specific tube designs help bring out the characteristic strengths that the Segal offers. Because of the 1,175g frame, the first thing that I noticed is the ease with which this bike moved. When I pushed on the pedals, the Segal wanted to accelerate; it didn't want to wait for anyone. The best part of my ride, during the first few pedal strokes, was when I came out of my driveway and I had that feeling of "blast off". That same sensation carried over on the streets when I decided to see how the Segal would react under some heavy stress. I like the Sram Red because it's possible to shift gears out of the saddle while sprinting flat out. The head tube area on the bike, a reasonable 17.5cm, proved plenty stiff to prevent any loss of energy from a lot of side to side movement during the sprints. When pulling on the bars and sprinting in my largest gear the Segal shot forward during every effort. This road frame reacts like a sprinter's frame, partly because of the 100.4 cm wheelbase and the straight 350g carbon Segal fork. Diving into turns only inspired confidence as the bike whipped around corners to change directions as quickly as I desired. The straight carbon fork was steady under heavy braking and was not twitchy or unpredictable. When it was time to accelerate out of the saddle, the firmness of the frame became evident as the bike easily took off. During these high speed criterium moves, and even flying down the road at 30 mph, the bike rode well without having any handling problems.

Out on the open road, when riding at even a casual pace, the frame felt sturdy and reliable. Heading into the hills I knew the lightweight frame would help with my climbing but I also needed strength from the frame. When I applied big pressure to the pedals, the bottom bracket area and beefy chain stays immediately focused that power directly to the wheels. Out of the saddle, climbing towards the top of the climb, the bike continued to impress with its rigidity and firmness as it reacted to each pedal stroke. Whether climbing or sprinting, the strength of the rear triangle really stood out and made a big difference in the way the bike felt. The Segal rode like an arrow. It's straight, fast, and the magnesium doesn't allow much flex. Because magnesium has very high dampening characteristics it's meant to give the rider more comfort. This is not to say it's a cushy or soft ride; it's completely the opposite. The frame is very sensitive to the road. When hitting the bumps, it doesn't absorb them but seems to go right through them. The frame's geometry with a 73 degree head tube angle and 73.5 degree seat tube also helped absorb some of the road shock. This sensation is a little unforgiving on very long rides, but fantastic when putting the bike through high speed corners, sprints, and descents.

Segal offers almost any combination of components that one might prefer. The bike is available in four different color combinations and ranges in even sizes from 48cm-64cm. Segal utilizes a unique M-Tig welding process that the manufacturer has perfected. This is evident by the visible precise welds around the lugless frame. These welds not only hold the tubes together but also increase the strength of the frame. This combination of stiffness and strength are two factors that make the front end and bottom bracket feel unmovable.

Segal makes only high end road frames, including custom, which come in three different designs. You can choose from classic, compact, and LFT (low front tube) which are available in four different color combinations. The high gloss paint is a nice finish and to prevent corrosion the bike is coated with a protective anti corrosion chromatic layer.

Segal's magnesium replaceable derailleur hanger is a nice touch in case of a crash or bad luck.

The Segal road bike is all about performance because of its ultra efficient transfer of energy. The Segal is very stiff laterally and vertically. Regardless of whether you are a racing fanatic or a casual group rider, the Segal will not let you down. The bike's ability to surge forward during sprints or climbing is a result of years of designing and working with this special material. If you haven't thought of Israel as a maker of racing bikes, now would be the time to start doing so and explore the benefits of magnesium and all that it has to offer.

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Ultralight Handmade Magnesium Bikes

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