

133.78 km/h: Dutch high-tech bike sets new world record

September 17 2013



Credit: Bas de Meijer

It took until the very last attempt in a week of racing, but suddenly everything came together: Sebastiaan Bowier reached a rip-roaring 133.78 km/h (83.13 mph) in the high-tech recumbent bike developed by students from TU Delft and VU University Amsterdam. This set a new world record, making him the world's fastest cyclist travelling 0.6 km/h faster than the previous record holder, Canadian Sam Wittingham. Team leader Wouter Lion gave a satisfied response: "We knew that both the

technical and human aspects were right today: it is highly gratifying that the potential for success ultimately became reality, even though we faced a pretty strong strong headwind."

In addition to Sebastiaan's record-breaking speed, another cyclist in the Delft/Amsterdam team also put in a superb performance: with 127.43 km/h, Wil Baselmans secured third place in the world record ranking, just behind Bowier and Wittingham.

Headaches

The speeds were achieved on a 200 metre stretch of road, with a run-up of 8 km across a totally straight route in the Nevada desert (USA). "It was unbelievably exciting. We had six days in which to secure the world record, but encountered technical problems at the start. This created some headaches and a lot of overnight work. When you manage to break through the [world record](#) on the last evening after three days of bad weather, it just feels fantastic", said proud team leader Wouter Lion.

Computer simulations

During the week, the team benefited greatly from advanced [computer simulations](#), which showed how fast the record bike should go at a specific power. "The results from the record attempts earlier this week revealed a major issue with the bike, making a high-speed simply unachievable", explains Wouter Lion. The computer simulations indicated the need for much faster cycling, but a careful analysis of the data revealed that the problem was with the aerodynamics. "The power applied by pedalling on the VeloX3 appears to deform the aerodynamic bike", says Lion. Fortunately, the students were able to devise a smart solution, which eventually rectified the problem yesterday.

Human Movement Sciences

Choosing the best cyclist and the most appropriate preparations and racing strategy was the responsibility of Human Movement Sciences students from VU University in Amsterdam. "By having the cyclists train for an average of 15 to 20 hours every week for a year, we were able to ensure they could perform at optimum levels of fitness this week", explains trainer Jelle de Jong.

The Delft team opted for a recumbent bike using a shell with extremely low air resistance. "Our design has just a tenth of the resistance of a normal cyclist. A special coating by Akzo Nobel from the world of Formula One was also used to give the VeloX3 extremely low air resistance", says Lion. "This is not only an achievement by the students and cyclists, but also the many businesses that supported us, including our chief sponsors PostNL, who have backed us since the very first team to emphasise that the Netherlands is a top cycling country, and that we should be proud of that fact."

More information: www.hptdelft.nl/en/

Provided by Delft University of Technology

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