

# VELOCITE CREATES A WORLD FIRST IN WHEEL DESIGN

**Venn Var 77 rims, the ever first bicycle product in the world built with Artificial Intelligence (AI), that will be the fastest, and indisputably most technologically advanced rims in the market.**

Velocite is imminently releasing the first ever AI-designed wheel to the market and, whilst most companies are struggling with how to implement AI into their businesses, Velocite has already succeeded – the end result is the most advanced rim in the world – all thanks to AI.

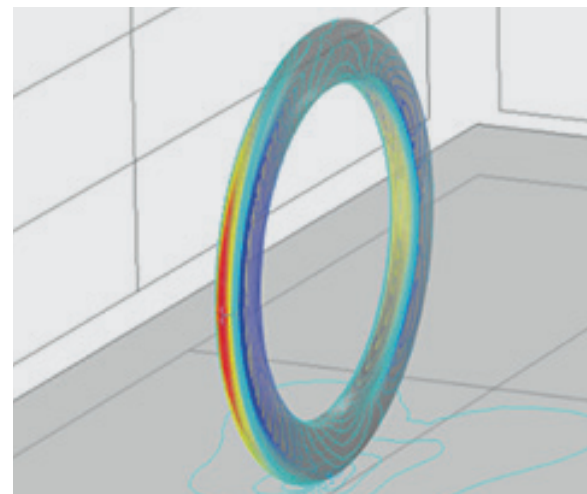
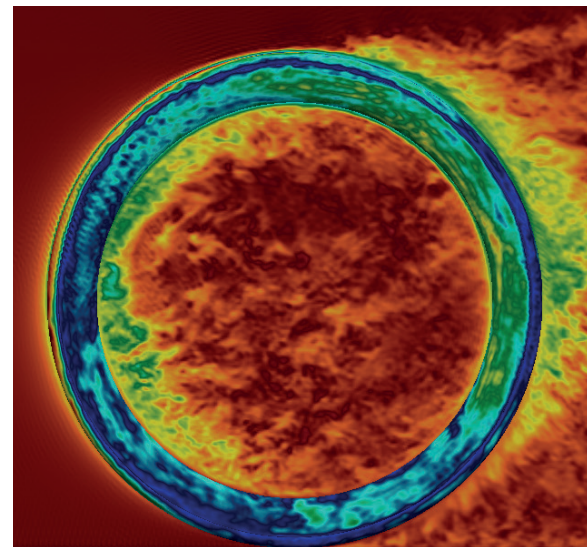
This is cutting edge computing, no gimmick, that has taken years of research and collaboration with leaders in the field of Computational Fluid Dynamics (CFD) and AI. Most notably, Prof. Matthew Smith, department of mechanical engineering at the NCKU (Tainan). Prof Smith is a widely published author of research papers in the field of CFD and use of AI for identifying solutions and optimisation of designs. He is without doubt a leader in the field of CFD and invaluable to the creation of Velocite's design protocols.

Our aim has always been to make the best products, we strive to use the latest class leading processes and materials and this drove us to use AI to design the most aerodynamic non-disc wheel in the world. Achieving that meant deploying an AI, which could optimise what we were looking for, the best possible rim profile for the lowest aerodynamic drag.

As explained by Victor Major, director and head of product development, "Matt developed an AI optimization routine whose goal was to find the lowest drag 2D profile. The 2D profile was constrained to resemble a bicycle wheel rim cross section. The main parameters were the fixed diameter of the tire (25mm), the widest point of 30mm wide (when we removed the maximum width constraint the optimal shape was 42mm) and depth of 77mm. The shape of the rim was left free for the AI to play with."

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Below: CFD simulations



**The Ai generated 675 different 2D profiles until the final one was identified.**

From this point, a 3D profile was made from the 2D model and machining began to create the mould ready for the production process, which follows on from our revolutionary Rev wheel technology but with some differences.

Victor explained, “With the Var process we use prepreg slit carbon fiber tape instead of dry tape and wet resin like with the Rev process. This allows us greater process stability across a greater range of environmental temperatures and humidity conditions. There are two resins that we use. For rim brake TCC series we use a very high glass transition temperature (Tg) resin, while for disc brake TCD series we use a special toughened resin but with lower Tg. Both Var and Rev processes use filament winding, but not in the same way. Var allows us to apply fibers where needed, but Rev has more geometry freedom compared to the Var process. This is why we will have both Rev and Var technologies in our range”.

We constantly strive to bring meaningful technologies to our products, with the firm belief that our products are world class quality and unsurpassed in performance. We spend very little on marketing, preferring to spend money on R&D, based on the philosophy of quality and performance first, promotion second. We also like to get real world feedback and supply our wheels to teams such as, Belgian Pro UCI Team 3M, Ian To, the world renowned multiple champion ultracyclist. Ride our products with an unbiased view and we think you will learn to appreciate you are riding some of the best products in the world.

**For further information please contact  
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Above: Graphics for Var 77