

Topology and SLM in titanium custom bicycles

In the competitive road race-cycling sport, having a frame that is lighter and aerodynamic, grants a competitive advantage. If we look at the market, the lighter and expensive bicycles are made from carbon where the cheaper models are made out of metal-alloys. This makes the consumer biased towards metal-alloy frames, mostly about the weight.

To make a optical and physical change in weight, the connection points (lugs) in between tubes are chosen. Using a topology optimised lug in frames improves production speed whilst maintaining conventional production methods and technologies. This lug has the opportunity to make the frame lighter and stiffer compared to a frame without lugs.

The final product is a result of a marriage between craftsmanship and cutting edge technology. This product incorporates the characteristics and core strengths of the Braun-cycling company and the developments of CAD modelling software and additive manufacturing into a unique and high-quality product. It shows that metal-alloy bicycles are in no way outdated, but are futureproof.



Topology optimised SLM printed titanium lugs made for the custom bicycle industry

Bobby Adriaansens
Road race cycling frame of the future
12-07-2019
Integrated Product Design

Committee Stefan van de Geer
Dicky Brand
Company BRAUN cycling

