PRESSRELEASE

3DLASERBW
Ein Unternehmen der BENSELER Gruppe

BENSELER subsidiary 3D Laser BW manufactures lightweight components for the racing team Esslingen University of Applied Sciences

In pole position with 3D-manufactured wheel carriers

Kirchheim/Teck, 25. June 2024. Formula Student is an international design competition for students who design, build and drive Formula 1-style racing cars. One of the top teams in the series is the racing team from Esslingen University of Applied Sciences. It is supported by the BENSELER subsidiary 3D Laser BW GmbH und Co KG: the 3D specialists from Kirchheim unter Teck supply ultra-lightweight wheel carriers and rocker shafts, which are manufactured using the metal laser melting process.

As in Formula 1, every gram that the students save in the construction of their racing car counts in the Formula Student race against the clock. And of course, as with the professional cars, all the parts used must be able to withstand high loads - especially if they are relevant to safety. This is where the Esslingen University racing team excels. In the Formula Student Electric world rankings, the team is among the top ten of over 300 participating universities. In addition to the performance of the young designers and drivers, this success is also thanks to the suppliers, who develop high-tech components with the students and support them with their expertise. The 3D specialists from 3D Laser BW in Kirchheim unter Teck, a subsidiary of the BENSELER Group, are also on board. They supply wheel carriers and rocker shafts that are manufactured using the metal laser melting process and are therefore bionic and many times lighter than comparable components manufactured using other processes such as investment casting.

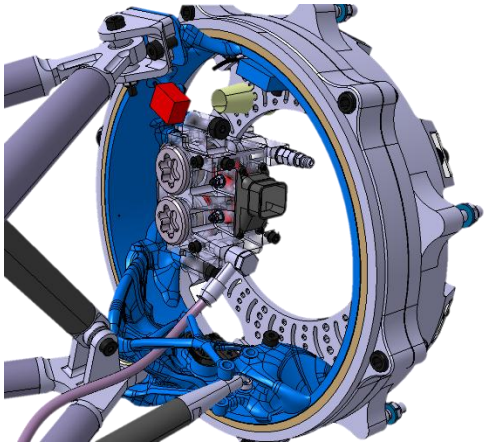
Small wall thicknesses possible in metal laser melting

Using the metal laser melting process (also known as LaserCUSING®, DMLS, SLM, LPBF), 3D Laser BW manufactures, among other things, near-contour cooled tool inserts for die casting, injection molding and functional prototypes. In this process, metal powder is applied in layers and melted with a laser beam. This means that even unusual component geometries can be produced efficiently and without tools. For the first time in its history, the Esslingen University racing team has installed an inverted

wheel carrier manufactured using the metal laser melting process in its current racing car. In a conventional wheel assembly, the hub is located inside the wheel carrier, whereas in the inverted wheel assembly it is the other way around. Compared to conventional processes, the new wheel carriers from 3D Laser BW are many times lighter. This is because the metal laser melting process allows significantly thinner wall thicknesses to be achieved than with conventional casting processes. Another advantage of the 3D process is the integration of functions: elements such as cables can be integrated into the components, which would have to be placed around the component with conventional parts. In addition, the printed wheel carriers and rocker shafts are stronger than the cast models. This is a significant advantage for the Esslingen University racing team in the race for thousandths of a second.

► Download pictures

pic 01/source: Hochschule Esslingen



pic 02/source: Hochschule Esslingen

The wheel package with 3D-manufactured lightweight wheel carrier from 3D Laser BW

pic 03/source: 3D Laser BW

pic 04/source: Hochschule Esslingen

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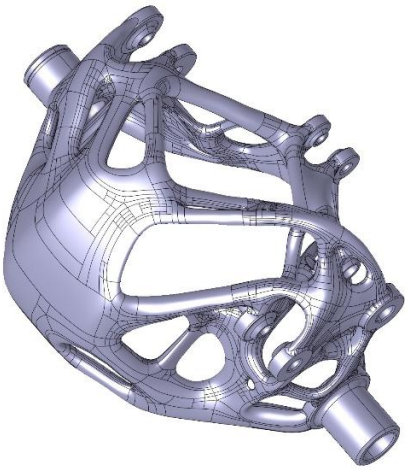

Rocker shafts from 3D Laser BW for the racing car of the Esslingen University of Applied Sciences racing team

pic 05/source: Hochschule Esslingen

The Stallardo'22 of the Esslingen University of Applied Sciences racing team

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About BENSELER
BENSELER is a competent service provider and partner for technically sophisticated solutions in the fields of coating, surface finishing, deburring and electrochemical metalworking of series parts. The BENSELER Group, based in Markgröningen near Stuttgart, consists of two divisions: Coatings and Deburring. In 2018, the company also entered into additive manufacturing in the metal sector.

The company is constantly developing its core processes, supplementing them with upstream and downstream processes and maintaining system partnerships with its customers. BENSELER therefore understands the needs of the market and can offer solutions with added value. Several locations in Germany, the new subsidiary in Poland and holdings in Switzerland and the Czech Republic ensure proximity to the customer.

The BENSELER Group achieved a turnover of around 151 million euros in the 2023 financial year. It currently employs around 1,000 people, including 30 trainees. In addition to technical expertise, sustainability and social commitment characterize the actions of the family business, which has been in existence for more than 60 years.
Further information: www.BENSELER.de

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