

## Press release

# Additive World

## Finalists Design Challenge 2019 accelerate in industrial 3D printing

Professionals and students redesign products with broad range of benefits

On Thursday, February 7, 2019, Additive Industries announced the finalists of Additive World Design for Additive Manufacturing Challenge 2019. From a group of 121 contestants, both professionals and students, 3 finalists were selected per category. “The redesigns submitted from all over the world and across different fields like automotive, aerospace, medical, tooling, and high tech, demonstrated how product designs can be improved when the freedom of additive manufacturing is applied. This year again we saw major focus on the elimination of conventional manufacturing difficulties, minimization of assembly and lowering logistical costs. There are also interesting potential business cases within both categories’ says Daan Kersten, CEO of Additive Industries.

This year, in the professional category, Carbon Performance Limited (the UK) shows how the hyper-performance suspension upright, one of the most critical load bearing components of the sport car, can get a 30% weight reduction, in contrast to any conventional upright, by using topology optimisation. Another professional, K3D from the Netherlands, improved the performance of the old design of the cutting dough knife (food tech), which is attached to a robot, by optimising it for additive manufacturing. Besides solving such problems as stickiness of the dough during the cutting process and uneven depth of each cut, K3D also manages to save up to 90% of the weight & reduce the production price by using the redesigned additive manufactured dough knife. The third finalist of the professional category, Mr. Kartheek Raghu, from the Indian company Wipro3D, redesigned the conventional design of a Cryogenic Cold Trap for a sublimation process. The cold trap is a device that condenses all vapours, except the permanent gases into a liquid or solid. The redesign contains fine lattice structure that holds cryogenic temperature for longer and therefore improves performance.

The finalists from the student category had interesting redesigns this year as well. Two students from Nanyang Technological University (Singapore), with their “Brake Caliper” (automotive application) optimised the part design for the challenge and managed to reduce the weight by 2.61kg, which is a 35% weight reduction of the overall part. Abraham Mathew from the McMaster University (Canada) introduced his Topography Optimized Cubesat Propellant Tank (space industry) to improve the stiffness of thin walled parts by modifying surface features without increasing wall thickness and consequently mass. The third finalist in the student category, Obasogie Okpamen from the Landmark University (Nigeria) achieved the mass and material reduction in his version of the “Twin Spark Connecting Rod” through topology optimization.

This year we have two honourable mentions in the professional category. The first honourable mention is last year's winner of the professional category, Aidro Hydraulics & 3D Printing (Italy) with their Unibody Hydraulic System. The additive manufacturing benefits utilized are the option to produce highly complex internal and external geometries and the possibility to design a part based on its core functional purposes, not on the restrictions and limitations of subtractive manufacturing technologies. Another honourable mention is for the Contirod-Düse from Nina Uppenkam, SMS Group GmbH (Germany). In comparison to the conventional CONTIROD® Nozzle, the new AM design is a monolithic design and requires only 35 mm of space compared to previous 65 mm, it weighs 0.85 kg instead of 2.5 kg. The nozzle no longer consists of six parts, but only one part, so that the pre-assembly and adjustment of nozzle before installation into the plant is eliminated.

<End of press release>

Please find enclosed the redesigns of the finalists. Please add: source: Additive Industries.

The designs are (from left to right, first top row then bottom):

- “Hyper-performance suspension upright” from Revannth Narmatha Murugesan, Carbon Performance Limited (United Kingdom, professional category)
- “Cutting dough knife” from Jaap Bulsink, K3D (The Netherlands, professional category)
- “Cryogenic Cold Trap” from Kartheek Raghu, Wipro3D (India, professional category)
- “Brake Caliper” from Nanyang Technological University team (Singapore, student category)
- “Cubesat Propellant Tank” from Abraham Mathew, the McMaster University (Canada, student category)
- “Twin Spark Connecting Rod” from Obasogie Okpamen, the Landmark University (Nigeria, student category)

[More information](#)

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#### **About Additive World**



Additive World strives to connect the dots in industrial 3D printing. We want to create a platform to meet colleagues from your industry and experts in your field of use. To exchange insights, share experiences and accelerate the learning curve to a mature technology. Additive World is an initiative of Additive Industries.

#### **About Design for Additive Manufacturing Challenge**

In order to grow the number of examples and inspire many other industries to develop dedicated applications for industrial 3D printing, Additive Industries has launched the Additive World Design for Additive Manufacturing Challenge 2019 at the renowned Dutch Design Week in Eindhoven in October 2018. Competing in two categories, both professionals and students were encouraged to redesign an existing conventional part of a machine or product for 3D printing. The winners will be announced at the Additive World Conference Award Dinner on March 20, 2019 in Eindhoven.

#### **About Additive Industries**

Additive Industries is accelerating industrial additive manufacturing of high quality, functional, metal parts by offering a modular end-to-end 3D printing system including a seamlessly integrated information platform to high end and demanding industrial markets. With substantially improved reproducibility, productivity, and flexibility, Additive Industries redefines the business case for series production of additive manufacturing applications in aerospace, automotive, medical technology and high-tech equipment.