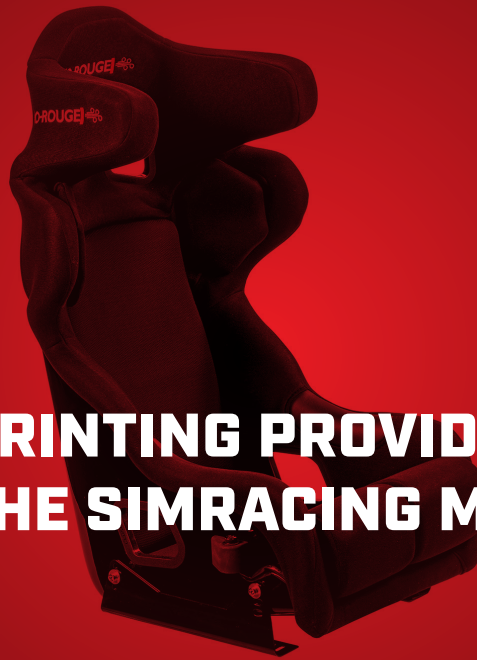


# 3D PRINTING END USE PARTS: CUSTOMIZED VENT FOR INTERNAL COOLING SYSTEM ON SIMRACING SEAT

# LOCTITE®



## LOCTITE 3D PRINTING PROVIDES SOLUTIONS FOR THE SIMRACING MARKET

### Background

O-Rouge is a Belgian company developing and producing high-end and innovative gear for the Simracing market. O-Rouge is focusing on the Simracers that are looking for the ultimate experience and not only in the driving itself. The company offers tailor-made solutions and customized products, so small-batch production is important for them.

In 2008, the owner of the O-Rouge brand founded Tenco DDM. Each simulator in the O-Rouge brand benefits from the ability to design and manufacture parts on demand for the sim-racing industry. In 2013, the company invested in the first 3D Printing machine to produce industrial parts. Since then, Tenco DDM has become a specialist in functional additive manufacturing and high-end finishing services.

### APPLICATION:

3D Printed Vent for Simracing Seat Internal Cooling System

### MATERIAL:

[LOCTITE 3D IN0406 HDT100 High Elongation](#)

### TECHNOLOGY:

[Rapidshape i30+](#)

### The Challenge

O-Rouge needed to develop a Simracing seat with internal cooling in a new project that required small series production of 400 – 1000 parts per year. The application looks like a simple mesh part, but due to the whole system's design, it needs to withstand mechanical loads over time. The main challenge was finding a manufacturing method and material that was strong enough to withstand these heavy loads and vibrations and be UV stable with a high finishing and accuracy.

To find a suitable solution, O-Rouge leveraged the expertise of Tenco DDM, a service bureau with expertise in photopolymer industrial 3D printing. After their initial review of the project, Tenco DDM decided the DLP 3D printing process was the most suitable technology to satisfy the customer's needs.



Internal exhaust system

Henkel

# 3D PRINTING END USE PARTS: CUSTOMIZED VENT FOR INTERNAL COOLING SYSTEM ON SIMRACING SEAT



## The Solution

Technology: [Rapidshape i30+](#)

Material Selection: [LOCTITE 3D IND406 HDT100 High Elongation](#)

Cleaner: [LOCTITE Cleaner C](#)



CAD design

LOCTITE 3D IND406 HDT100 High Elongation				
55 MPa	1,610 MPa	25 %	107°C	79 D
Tensile Stress at Break	Young's Modulus	Elongation at Break	HDT at 0.455MPa	Shore Hardness

Tenco knew that 3D printing was the best solution to manufacture these vents for the internal cooling system. To find a material that could work in the demanding environment, Tenco looked to Henkel LOCTITE. Henkel LOCTITE 3D Printing offers a diverse portfolio of engineering-grade resins for various DLP platforms. After evaluating the LOCTITE materials portfolio, LOCTITE 3D IND406 HDT100 High Elongation was selected as the best solution for their application requirements. LOCTITE 3D IND406 HDT100 High Elongation is a tough, rigid, and durable 3D printing resin that performs well in industrial applications requiring high temperature use. The material offers all-round strength, good impact resistance, and high elongation. The new vent for the Simracing seat internal cooling system were printed on Rapidshape's i30+ 3D printer.



Printed exhaust part

## BENEFITS

By utilizing LOCTITE 3D IND406 and the DLP printing process, Tenco was able to create a cost-effective solution for O-Rouge. 3D printing with LOCTITE 3D IND406 HDT100 High Elongation ensures that outstanding mechanical properties are realized with high durability and excellent surface finish to meet these production parts' requirements.

Using LOCTITE 3D materials, you can print strong parts with a high level of detail in small batches. By leveraging LOCTITE 3D IND406 HDT100 High Elongation on Rapidshape's i30+, Tenco could print 40 cooling vent in a single print job. As LOCTITE 3D IND406 HDT100 High Elongation is black, the parts have the right color out of the machine and do not need a lot of intensive post-processing.

The parts are created in the required batches when the seats are ordered, so there's no stock of parts. This is a considerable advantage in lead time and manufacturing savings compared to traditional manufacturing methods such as injection molding, where tool investment and larger production quantities would be needed.

**"Using additive DLP manufacturing, we can not only make products in small quantities, but it also gives us the possibility to personalize the parts for customers or teams if needed," explains Tom Castermans, Founder of O-Rouge. "Our mechanical requirements are high as the best gamers use our products, which must be shipped worldwide. We need to ensure that the materials are strong, and we do not want to worry about parts breaking while assembling or shipping the seats, so Loctite IND406 is the right resin to use for this application."**

Want to learn more about Henkel's unique material solutions for the additive manufacturing industry?  
Visit Henkel's LOCTITE 3D Printing at [LoctiteAM.com](https://www.loctiteam.com) or reach out to us via [loctite3dp@henkel.com](mailto:loctite3dp@henkel.com)

### About **LOCTITE**

LOCTITE Additive Manufacturing delivers unique photopolymers with production capability, customized resins and engineering services to identify the best application to address your needs. With a constantly growing portfolio of high-performance materials, specialized equipment and post-processing solutions, LOCTITE overcomes the limitations of conventional 3D printing to enable additive manufacturing for the production of durable, functional parts. Through its strategic partnership with technology leaders for specialized equipment, LOCTITE is driving the adoption of 3D printing beyond prototyping and toward the production of final parts. ([www.loctiteam.com](https://www.loctiteam.com))

### About **rapidshape**

Rapid Shape decided to manufacture 3D printers itself almost 10 years ago. At that time, a virtue was made of necessity, because the offers on the market were not considered sufficient by the parent company Schultheiss GmbH, whose business field is heating and casting technology for processing precious metals. If nothing fits, something suitable needs to be made. So Rapid Shape's first 3D printers were developed, produced and positioned on the market with great success. Today, Rapid Shape is one of the leading suppliers of professional 3D printers, with a focus on the highest quality, absolute precision and tremendous productivity through automation. ([www.rapidshape.de](https://www.rapidshape.de))

### About **TENCO**

Tenco DDM is a dynamic company that focuses on both prototyping and manufacturing by means of additive manufacturing and injection moulding. Tenco DDM is a one-stop-shop that supports the customer throughout the entire project, from design (for AM), engineering, prototyping to series manufacturing. The company works at the highest industrial level and, in addition to standard printing, also offers complete finishing so that both prototypes and end series can be used as end products. The use of technical coatings is done 'in-house'. ([www.tenco-proto.com/](https://www.tenco-proto.com/))