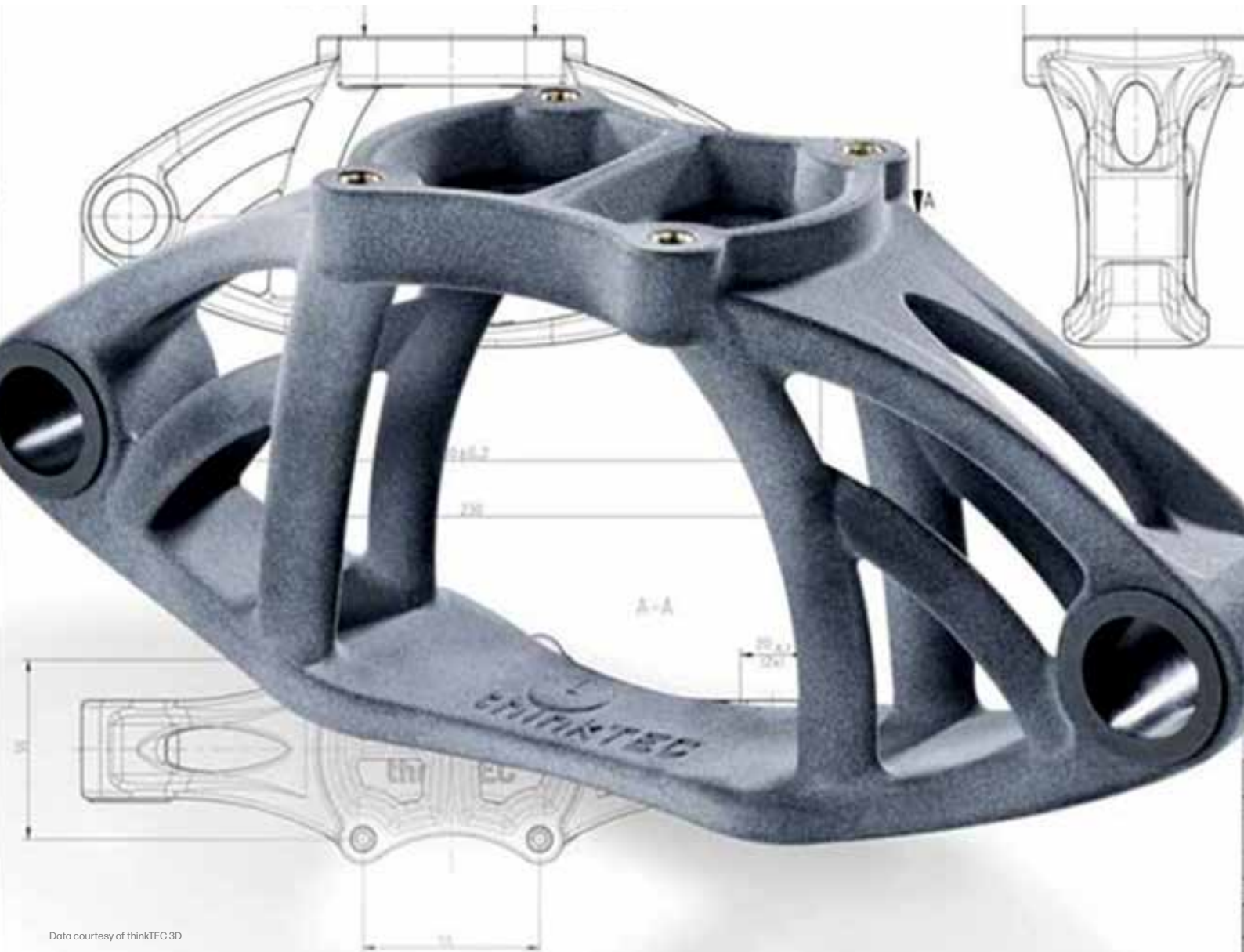
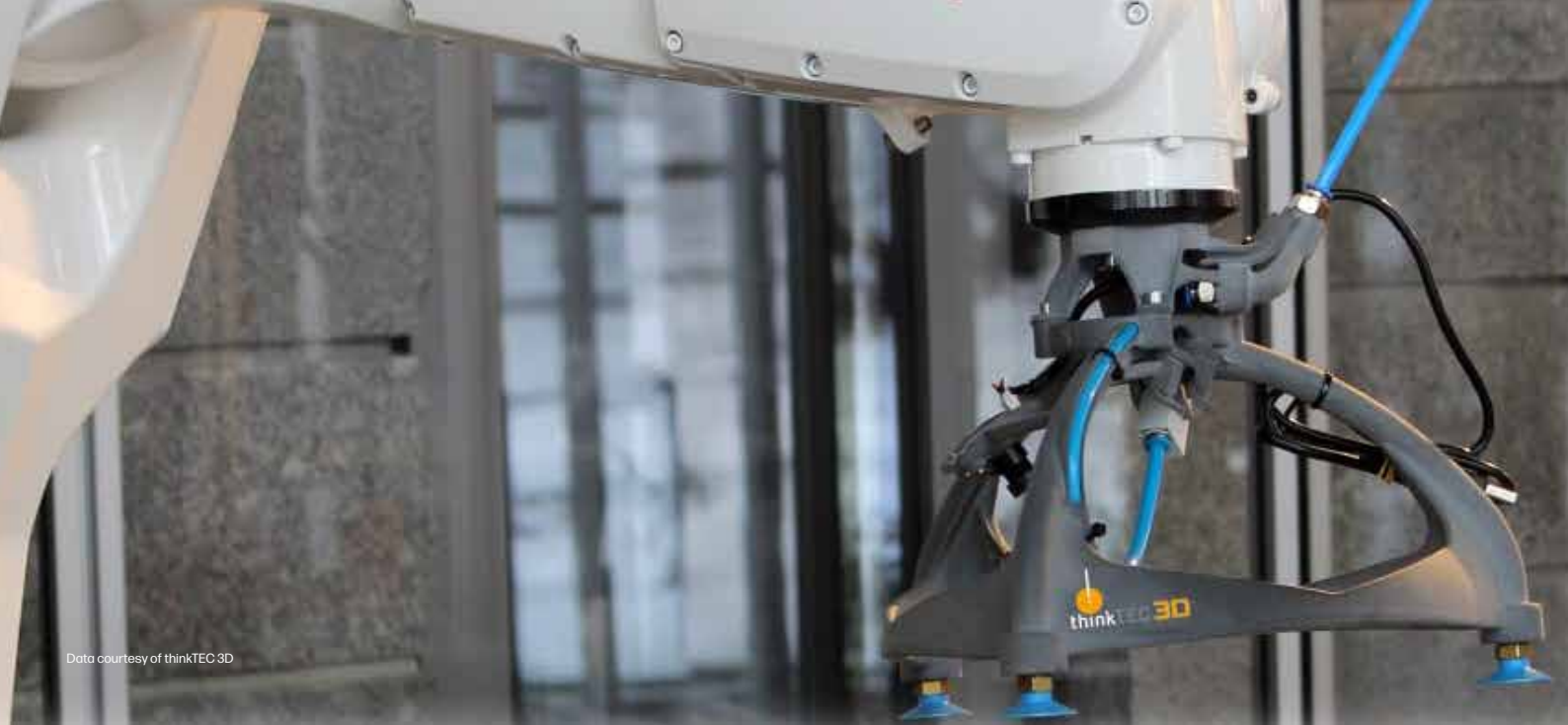


# thinkTEC 3D uses HP 3D Printing solutions for End-of-Arm Tooling designs that are optimized for pick-and-place





Data courtesy of thinkTEC 3D

# Introduction

With the use of HP's Multi Jet Fusion 3D printing technology, thinkTEC 3D manufactures multi-functional, lightweight and optimized EOAT that are perfectly suitable for the task at hand.

thinkTEC 3D develops and manufactures components, both in series and in individual quantities, thus creating an alternative to existing manufacturing processes.

With highly qualified construction know-how and a state-of-the-art machine park, they create products that would not be feasible with traditional manufacturing processes.

They serve clients in a wide variety of industries, such as mechanical engineering, medical technology, and interior design, and are trusted industry partners thanks to their high-quality standards.

## ● Industry

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Industrial

## ● Sector

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Robotics

## ● Objective

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Optimize the product design while reducing overall weight and manufacture multi-functional EOAT

## ● Approach

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thinkTEC 3D adopted HP Multi Jet Fusion technology to optimize traditionally manufactured End-of-Arm Tooling to each specific use

## ● Technology | Solution

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HP Multi Jet Fusion technology,  
HP Jet Fusion 4200 3D Printing Solution,  
HP Jet Fusion 5200 3D Printing Solution

## ● Material

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HP 3D High Reusability (HR) PA 12  
HP 3D High Reusability (HR) PA 12GB

# Challenge

One common challenge to most manufacturers of End-of-Arm Tooling is the constant search for the most lightweight solutions that will allow the robotic arms to move with ease and do all the necessary operations fast and without additional weight.

Another important feature for thinkTEC 3D was the possibility to customize each part to be manipulated by the end effectors in its own specific way: for the application to be perfectly suitable for each task at hand, its geometry had to be precise and optimized.

And this last point is even more emphasized when dealing with very small pieces, that would eventually be part of smaller robots.

# Solution

thinkTEC 3D leveraged HP's Multi Jet Fusion technology to convert standard aluminum End-of-Arm Tooling to be 3D printed, resulting in a considerable decrease in weight.

For example, the 3D printed Pick-and-place EOAT with five rails is 80% lighter than its conventional counterpart, which also enabled the use of smaller robotic systems that require less capital investment, with savings on energy consumption up to 15%.

Another advantage thinkTEC 3D managed to obtain thanks to the use of additive manufacturing was the possibility to combine different materials: HP 3D HR PA 12 and PA 12 GB were both used in the design of a pick-and-place end effector that only weighs 4 kg (8.8 lb) and can therefore combine more functions.

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Pick-and-place EOAT with five rails



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Pick-and-place end effector

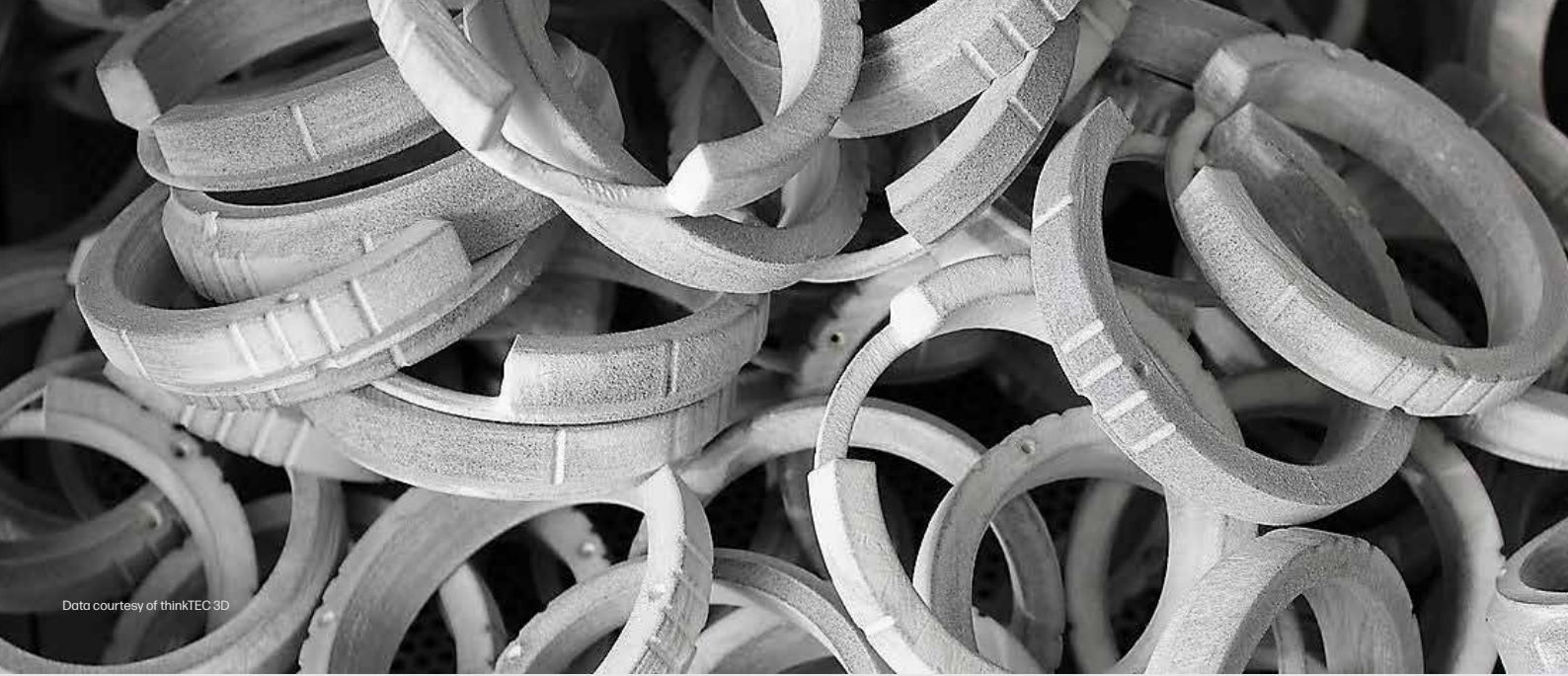


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Pick-and-place EOAT for carton packages







Data courtesy of thinkTEC 3D

## Result

thinkTEC 3D uses HP 3D printing solutions for functional and unique End-of-Arm Tooling designs that are optimized for pick-and-place.

By leveraging the design freedom enabled by 3D printing with HP Multi Jet Fusion, thinkTEC 3D was not only able to obtain better, more functional, lightweight and optimized parts, but was also able to integrate various functions into the applications, such as integrated air channels, brackets for cameras as well as cable management systems for more accurate movement of the robot arm.

And other than the possibility to add extra features, what additive manufacturing unlocked for thinkTEC 3D was also the possibility to leverage the main benefits of 3D printing - such as design freedom, maximum flexibility and different materials combination - with a for a multi-function concept creation, just like the case of the pick-and-place EOAT for carton packages, whose main function is to grip and place cartons in a palette, but that also has a secondary function and can place a carton underline on each carton line.

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