Automotive & Transportation

3D print custom parts and tools overnight to optimize production processes the next day. These improve assembly ergonomics, reduce errors, and increase operator satisfaction and productivity. This is digital transformation in the fast lane.

For more information on how leading automotive manufacturing is using 3D printing today, fill in the form to download our free guide.

High-pressure pump valve

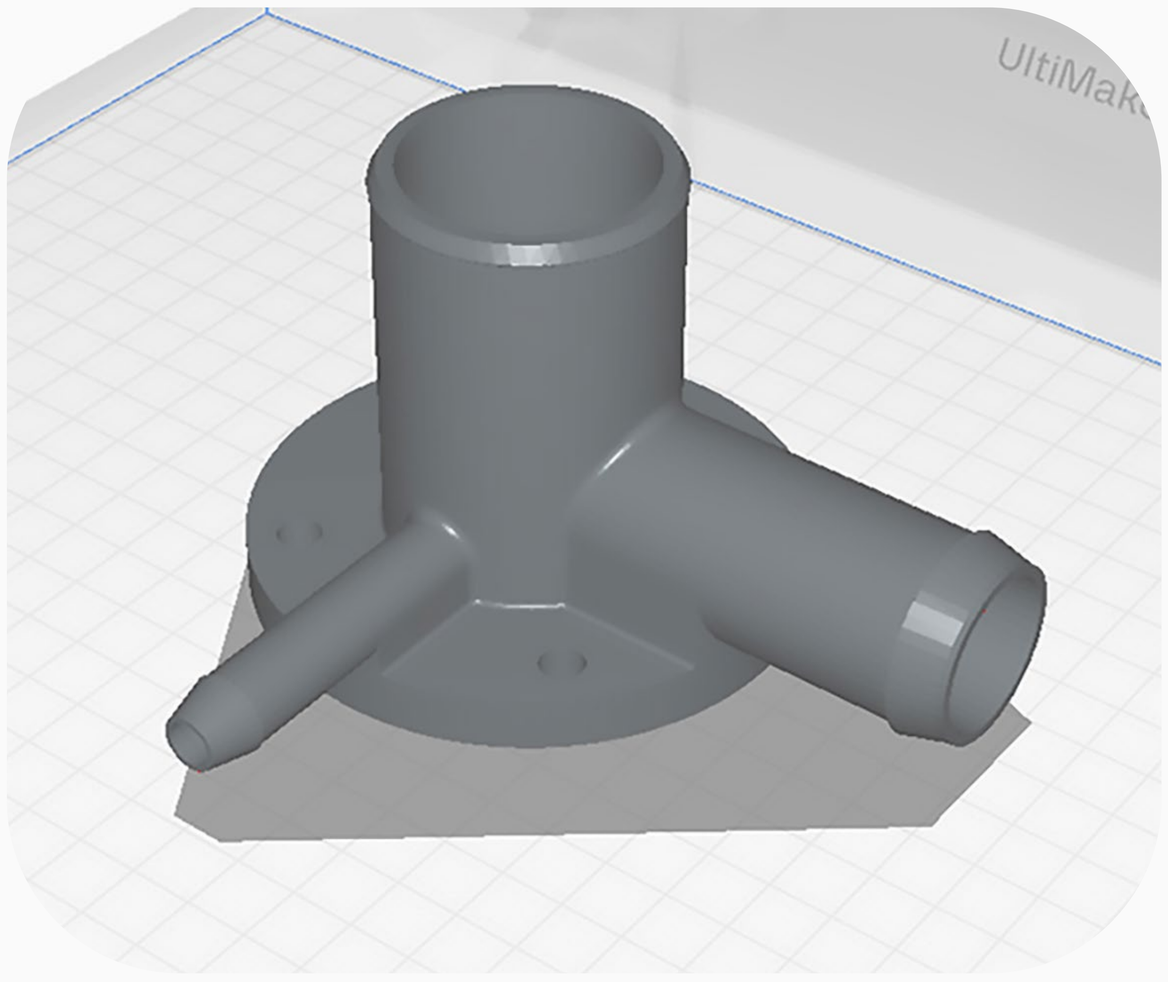
End-use part

Overview

- Flame retardant to UL94 V0 standard
- Resists all solvents and oil (below 200 °C)
- Replaces an obsolete part

Description

This pump valve is installed in a train to conduct liquids or chemicals. But because it had become an obsolete component (it was no longer produced), the entire pump assembly would need to be replaced – costing approximately €5,000. Using the latest engineering-grade composites, it can now be 3D printed, so that it still meets the required certifications for non-flammability and also for use with hot acids.



Material	UltiMaker PPS CF
Dimensions	120 x 120 x 80 mm
Outsourcing time	2 - 3 weeks
Print time	11 hours
Outsourcing cost	€ 140
AM material cost	€ 26

Air intake connector

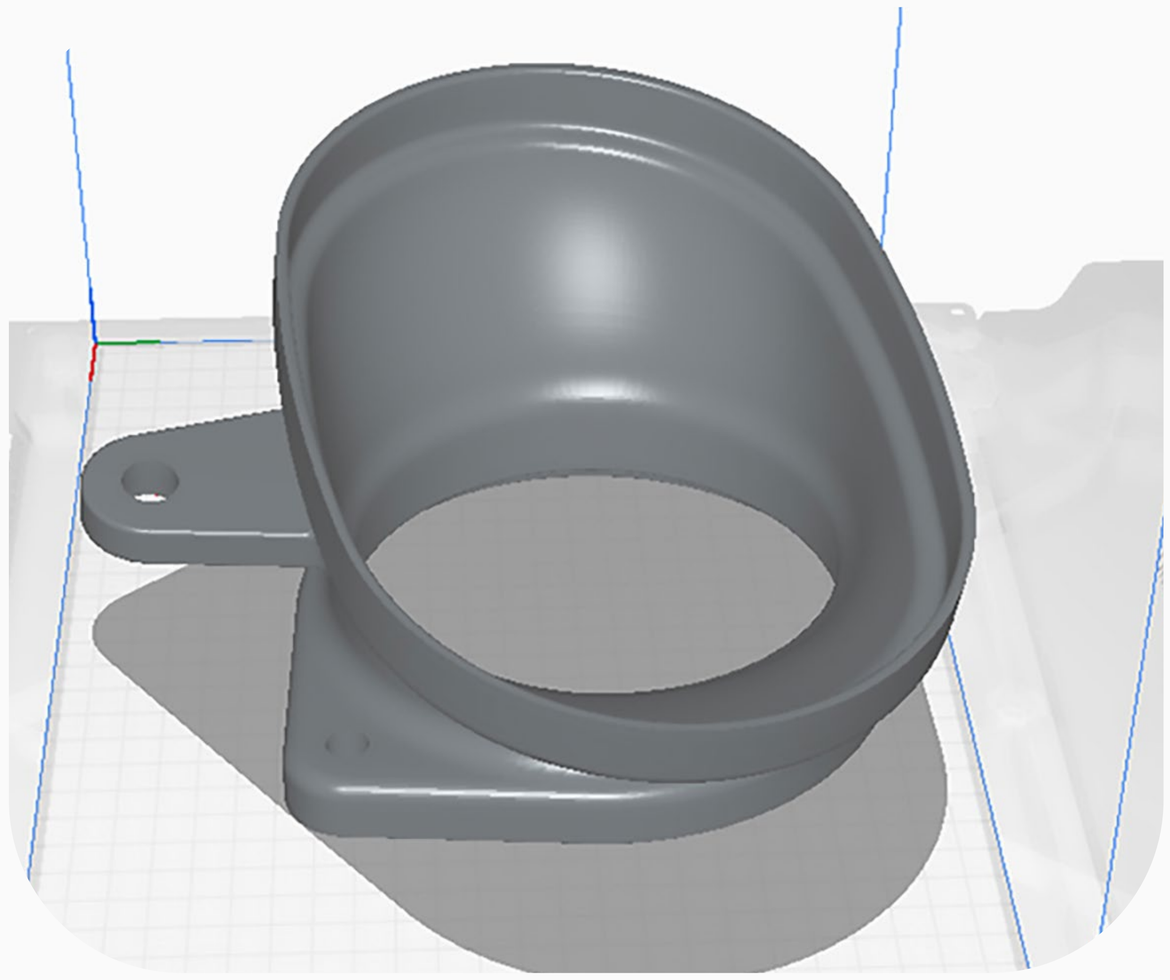
End-use part

Overview

- High thermal resistance
- Avoids long delivery times
- High cost reduction

Description

This component is a pipe connector that channels hot air in a vehicle. It must therefore have a high temperature resistance, especially in prototype construction or as a functional component for a small series, and accordingly withstand up to 230 °C. All these requirements were met using UltiMaker PPS CF material.



Material	UltiMaker PPS CF
Dimensions	230 x 220 x 124 mm
Outsourcing time	4 - 6 weeks
Print time	19 hours
Outsourcing cost	€ 287
AM material cost	€ 106

Airless trolley tire

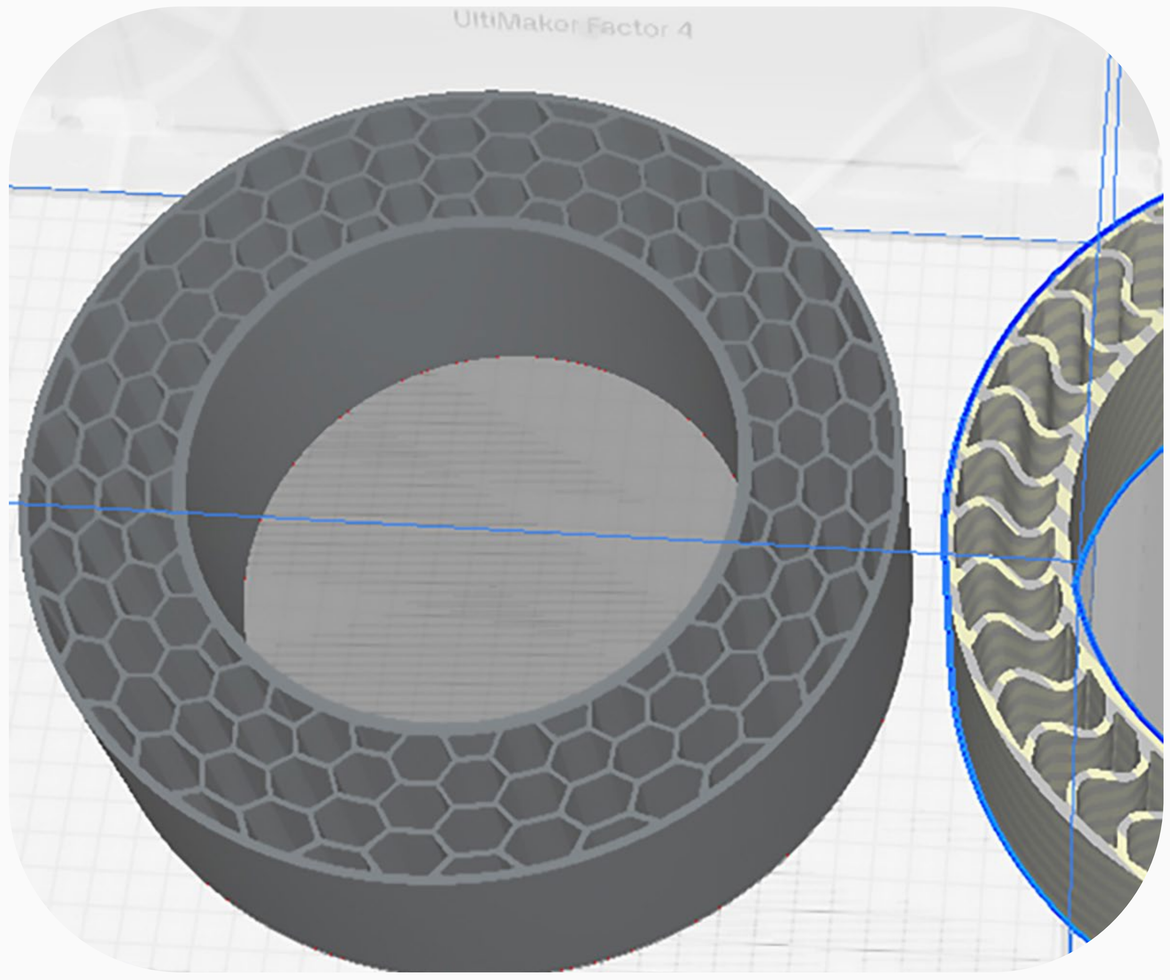
Replacement part

Overview

- Flexible material with variable infill
- Avoids long delivery times
- High cost reduction

Description

Instead of storing spare tires for production hall trolleys, they can simply be 3D printed. Doing so avoids the need for spare part warehousing. This example is a scaled-down version of a real customer component. It shows what's possible by 3D printing UltiMaker TPU 95A on the UltiMaker Factor 4. Infill pattern and density can be easily adjusted to emulate the traditional tire pressure. A more flexible TPU 70A – offered by a third-party material partner – can also be used.



Material	UltiMaker TPU 95A and TPU 70A
Dimensions	70 x 70 x 25 mm
Outsourcing time	4 - 6 weeks
Print time	4 hours
Outsourcing cost	€ 30
AM material cost	€ 2,44

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