



3D printing – innovative solutions, rapid spare part availability

The DB Fahrzeuginstandhaltung expertise in the area of 3D printing guarantees faster spare part availability. This reduces vehicle and system downtime. Especially for discontinued parts, 3D printing allows you to produce small batch sizes with no one-time costs or minimum order quantities.



Our expertise for your company

DB Fahrzeuginstandhaltung is expanding the area of 3D printing all the time. We can offer you a unique combination of 3D printing and rail vehicle technology expertise. We use this expertise to specifically resolve our customers' availability issues and to implement possible special wishes. Naturally our aim is to deliver top quality and for that reason we work together with certified service providers only. As part of this cooperation with industry partners to shape relevant future topics in 3D printing, we are involved in the cross-industry network "Mobility goes Additive".

Application examples

With the aid of 3D printing we have established an alternative procurement channel for around 100 different parts, for example:

- Junction box for the ICE 1/2 traction motor
- Sand mould for box lever of an automatic load brake
- Dust protection cap for brake system
- Air grille for locomotive air conditioning unit
- Clamping block for sunblind
- Coat hook for passenger carriage
- Housing for driver terminal in locomotive

Our services

- Identification/feasibility study of suitable parts
- Reverse engineering for problem parts based on manufacturer's specification or sample part (e.g. using 3D scan)
- Joint technology testing
- Optimisation/further development of components

Use cases

- Discontinued components
- Components with long delivery times
- Minimum quantities with high costs
- Accident repair work
- Production accessories
- Prototyping
- Costly conventional manufacture

Materials

- Steel
- Aluminium
- Polyamide
- Ultem (DIN EN 45545-compliant)

Feasible component sizes (guide values)

- 900 x 610 x 914 mm plastic
- 800 x 400 x 500 mm aluminium
- 250 x 250 x 300 mm steel



Sand stairway



Ventilation grid



Junction box



Control



Protection cover



Segments for turbine impeller

Overview of advantages of 3D printing

Higher spare part availability

- Replacement for discontinued spare parts or spare parts that are difficult to source
- Set-up of second sourcing

Cost reduction

- Reduction of one-time costs (tool-less manufacture)
- Reduction of storage costs (production on demand)
- Avoidance of minimum order quantities

Downtime reduction

- Reduction of system failures and vehicle immobilisation times
- Shortening of delivery and order times

Faster decision-making

- Visualisation of new developments and design improvements
- Prototypes

Sustainability

- Extended component life cycle thanks to optimised, improved components
- Requirements-oriented instead of manufacture-oriented design
- Efficient resource usage



Contact

DB Fahrzeuginstandhaltung GmbH
Weilburger Straße 22
60326 Frankfurt am Main
GERMANY

www.db-fzi.com
sales-fzi@deutschebahn.com

Questions on 3D printing
3D-Druck@deutschebahn.com

© Photos: DB AG (6), Fraunhofer IAPT (2),
Fraunhofer IAPT (1), MBFZ toolcraft GmbH (1)

Subject to alterations.
No liability for errors or omissions.

Last updated: September 2018