OptiPart

Minimizing life cycle costs with 3D printing

79% reduction in mass
OptiPart – *minimizing life cycle costs with 3D printing*

Economical benefits of metal 3D printing:

- Better performing and lighter components - lower life cycle costs
- Part consolidation – no assembly
- Toolless manufacturing - economical short series
- Digitising components – on demand manufacturing

- OptiPart is a service, which allows customer to achieve proper understanding how to harvest the benefits of metal 3D printing through a concrete case study.
What OptiPart gives to customer?

- Structured way to start utilizing 3D printing in component manufacturing
- Understanding of principles: metal 3D printing technology, re-design for AM, topological optimization
- Real, printed case component
- Cost estimation of manufacturing of case component
- Co-creation with VTT experts
OptiPart procedure

1. 1st meeting – goal setting
   - goals, technologies, design principles, optimization
2. 2nd meeting – selecting component
   - Workshop for selecting component for study
3. Redesign the case component
4. Printing the case component
5. Cost estimation
6. Reporting
VTT OptiPart for design of ball valve seat

Customer: Metso Flow Control Oy

**CHALLENGE**

Take advantage of geometry freedom of Additive manufacturing to improve functionality of a ball valve seat. Redesign the seat optimizing it for printing.

**SOLUTION**

VTT used its OptiPart process to redesign the seat based on given design specification.

**BENEFIT**

- Printed part likely to be functionally superior compared to the original
- Printing time was cut roughly by 50% compared to the original geometry
- Part finishing time was clearly shortened due to fact that VTT designed seat can be printed virtually without supports, whereas the original needed heavy supporting

Co-operation with VTT experts in this project has been fluent and has helped us in finding the solution we wanted more quickly.

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TECHNOLOGY FOR BUSINESS