Selective laser sintering (SLS)

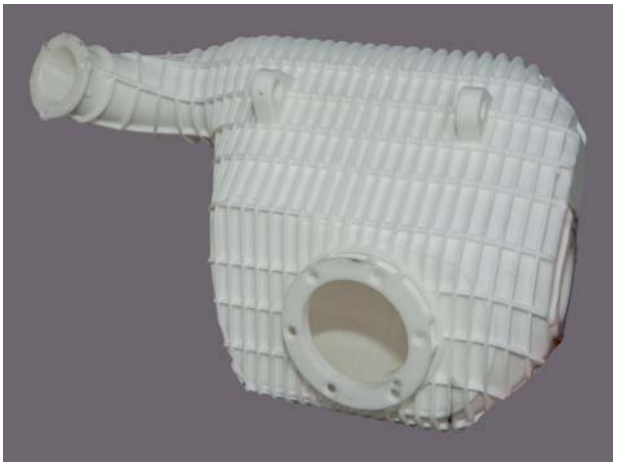
Components are created in layers through the local melting and binding of powder materials through energy input via laser beam. In the SLS procedure, different plastic materials are processed typically based on polyamide. The materials we use most often are Duraform PA and Duraform GF (glass-bead-filled), both based on polyamide 12, with outstanding mechanical characteristics.

Advantages

Functional prototypes and small-scale series

- Efficient from a quantity of 1 up
- No geometrical limits
- Very good material properties
- Function integration e.g. locking, film hinges, movable assemblies, etc.

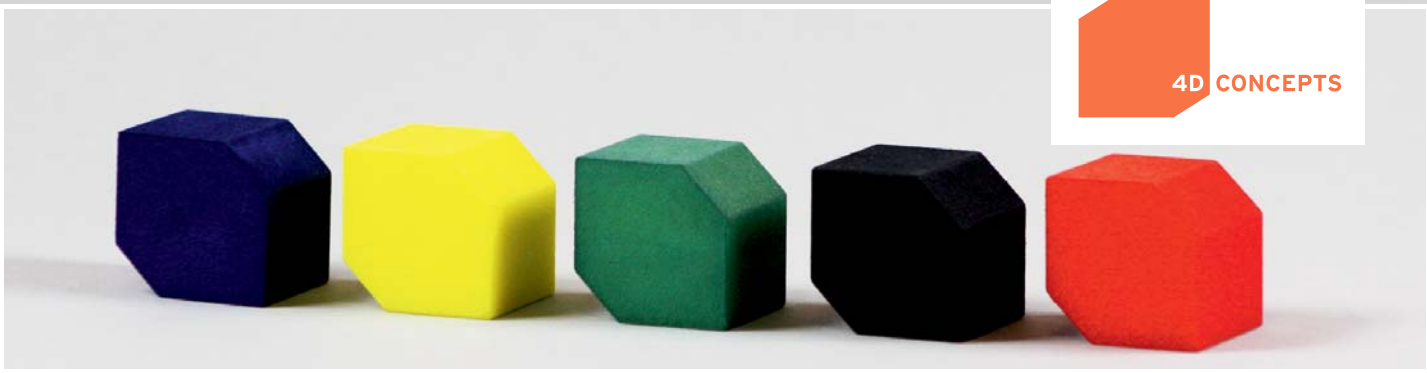
Options



Airbox race car FastDa made of Duraform PA, infiltrated pressure-tight, used for racing

- Maximum component size for unfilled PA: 485x485x700 mm
- Maximum component size for filled PA: 340x295x350 mm
- Minimum detail size: approx. 1x1 mm
- Minimum wall thickness: from 0.6 mm in X/Y, from 0.3 mm in Z
- Surface finish optional: smoothing, colouring, painting, infiltrating, etc.
- File format: STEP or IGES data are expedient for your request, additional formats upon request

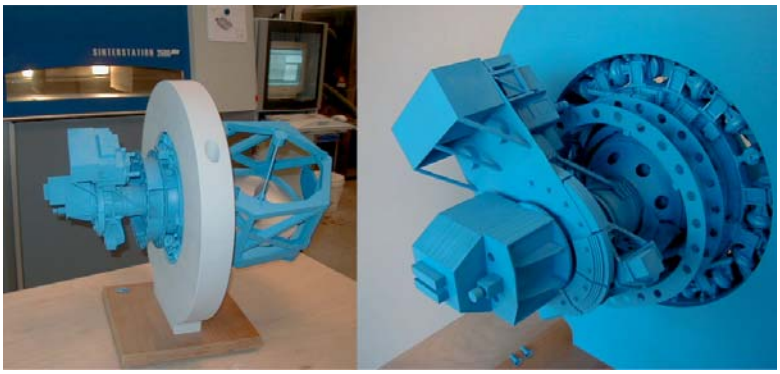
Phone: +49-6152-9231-0 • Fax: +49-6152-9231-11 • mail@4dconcepts.de • www.4dconcepts.de



Application example painting

SLS components can of course be painted. Without any prior surface finish, the surface quality shows a roughness in keeping with the coating thickness and grain size of the powder material.

The surface finish – through grinding or also automated slide grinding – means the surface can be processed up to a perfect finish for painting with any required RAL shade



SLS presentation model of a mobile IR telescope including paintwork.

Application example colours

SLS components can be dyed many shades with a colouring process. Our standard colour palette includes the standard shades red, blue, yellow, green, black. Special shades can be mixed upon request, but an exact RAL shade can only be approximated with this colouring process. The advantage over painting is a greater penetration depth of the dye and thus greater resistance against scratches as well as the colouring of inaccessible geometry areas.

SLS giveaway with advertising embossing and colouring with logo

Application example infiltration

SLS components are leak-proof against air and liquids starting at a wall thickness of approx. 2.5 mm even without further treatment. With thinner wall thicknesses, leak-tightness must be created through infiltration of the components. Infiltration takes place, depending on the component geometry, with spraying or dipping with a sealing synthetic resin so that the components can then also be used for applications with gas/air or liquid/water.

Phone: +49-6152-9231-0 • Fax: +49-6152-9231-11 • mail@4dconcepts.de • www.4dconcepts.de