



Laser Sintering (LS)

EOSINT P395



Source: EOS GmbH

Process Information

Laser sintering is an additive manufacturing process where parts are built in layers from a powdered material. The energy to locally fuse the powder is performed by a laser beam. After all layers are built the part can be removed out of the powder bed. The remaining unmelted powder can be reused in future production builds after being blended with new powder.

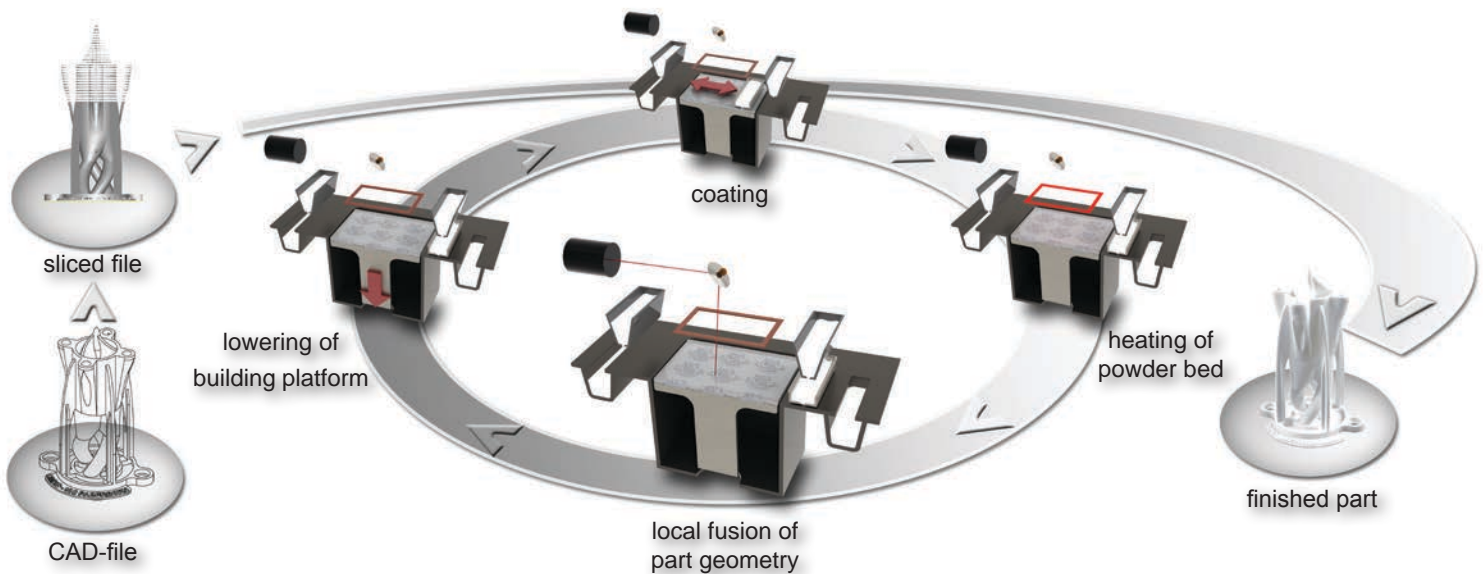
Technical Data

Building dimension	350 x 350 x 620 mm ³
Building speed	35 mm/h (max.)
Layer thickness	60 - 180 µm
Laser type	50 W CO ₂ Laser
Scanning speed	6000 mm/s (max.)
Support structures	not necessary

Material Data PA2200

Material type	based on nylon 12
Melting temperature	≈ 186 °C
Recrystallisation temp.	≈ 140 °C
Particle Size d _{v,50}	≈ 55 µm
Part. Size Distribution	≈ 30 ... 100 µm
Tensile strength	48 N/mm ²
Young's modulus	1650 N/mm ²

Process



Advantages

Three dimensional objects of any shape can be build without restrictions on forming tools. Parts can have integrated functions like moving elements or inner structures. Ideal applications for laser sintering are highly complex parts and/or the low quantity production. Changes to part geometries can be easily made reducing process time.

Challenges

Improving the part quality and repeatability of the laser sintering process are the main challenges. Therefore, projects at the DMRC investigating mechanical properties, material quality and surface finish of laser sintered parts to increase process knowledge.

Machine Components

