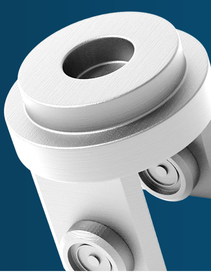
3 Design strategies for more sustainable parts

Incorporate sustainable practices throughout your design and manufacturing process to pave the way for a brighter, greener future.

FAST RADIUS.

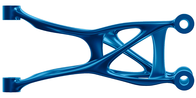


1. Reducing material

Reducing physical volume for parts can reduce the energy and waste by

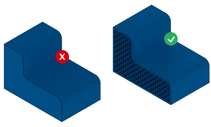
- Decreasing machine time
- Decreasing emissions from transport
- Reducing material

Reduce your part's material use with:



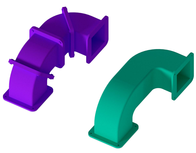
Generative design

Removes material through iterative simulation for given loading conditions and physical properties



Latticing

Reduces weight without sacrificing structure by latticing otherwise solid regions



Part consolidation

Reduces fabrication time, material usage, weight, and energy use from transportation

Support minimization

Optimizes part geometry to reduce support material, such as ramping, to eliminate overhangs

2. Designing for lifetime

Extend each part's lifetime by designing durable and easily replaceable parts to reduce waste. Increase your part's usable life by ensuring your parts can be:

Remanufactured
A used or non-functional product rebuilt to the original specifications

OR

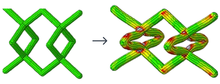
Refurbished
A used or non-functional product repaired and tested for functionality

When designing for lifetime, focus on making serviceable parts. In order to simplify failure diagnosis, replacement, disassembly, and reassembly, remember to:

- Simplify your design to reduce failure points
- Standardize components for simpler servicing and supply chain
- Add access panels, hinges, or hatches for easier access to service

3. Ensuring a sustainable design process

Evaluate your design and production process to identify opportunities to reduce your products' environmental impact.

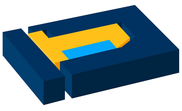


Design

Decrease prototyping and redesigns by validating your design with virtual assembly, simulation, and analysis

Manufacturing

Avoid designing features that require additional actions, tooling, and setups, which increase waste and energy use



Post-processing

Reduce environmental impact by producing parts with their final colors or using non-toxic paints

Fulfillment

Plan how your parts will be transported and design parts that will nest or pack flat during shipping to minimize emissions

Find new opportunities to improve the design and manufacture of your parts with an expert partner like Fast Radius.
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