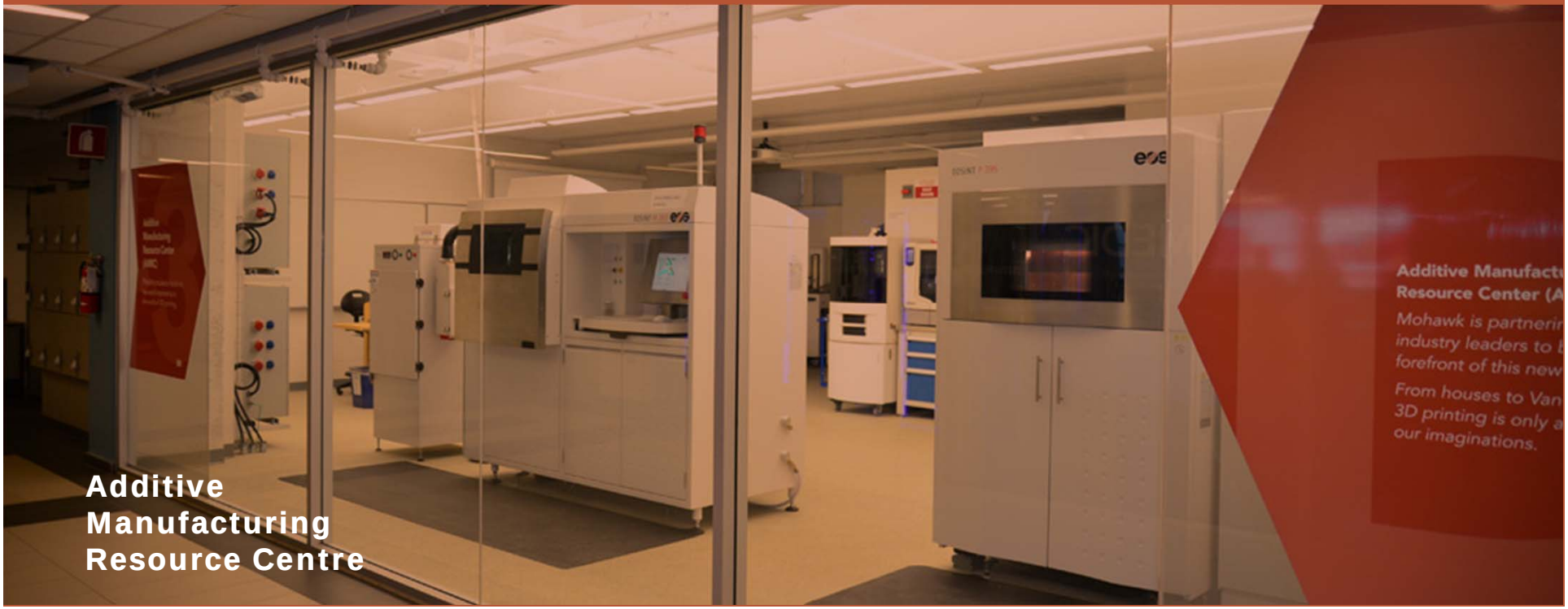
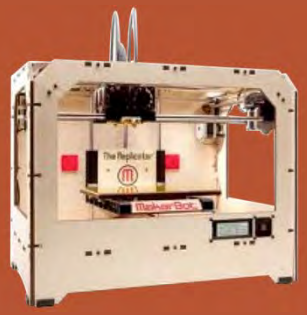
Located on Mohawk College's Fennell Campus, students work in a collaborative lab environment, mentored by Mohawk faculty, staff and the industry partners involved in each project

AMRC

- State-of-the-art facility
- 2nd institution in Canada with direct laser metal sintering (DLS)
- 1 of 2 large scale plastics Selective Laser Sintering (SLS) machines in Southern Ontario
- Applied research and design
- Work with small and medium sized enterprises
- Future ready students trained in unique and high-demand field of Additive Manufacturing
- Turn the digital into the physical



3 Classes of Technology



DIY / Makerbot

- Hobby / Personal
- 3d Printing
- No precision in context of repeatability

Professional

- Rapid Prototyping
- 3d Printing
- Low precision in context of repeatability

Industrial

- Production
- Additive Manufacturing
- High precision in context of repeatability

Workflow

- Solid Modeling / CAD
- Generation of STL file
- “Slicing” of the Model
- Model Physical Buildup
- Cleanup & Post Processing
- Finishing

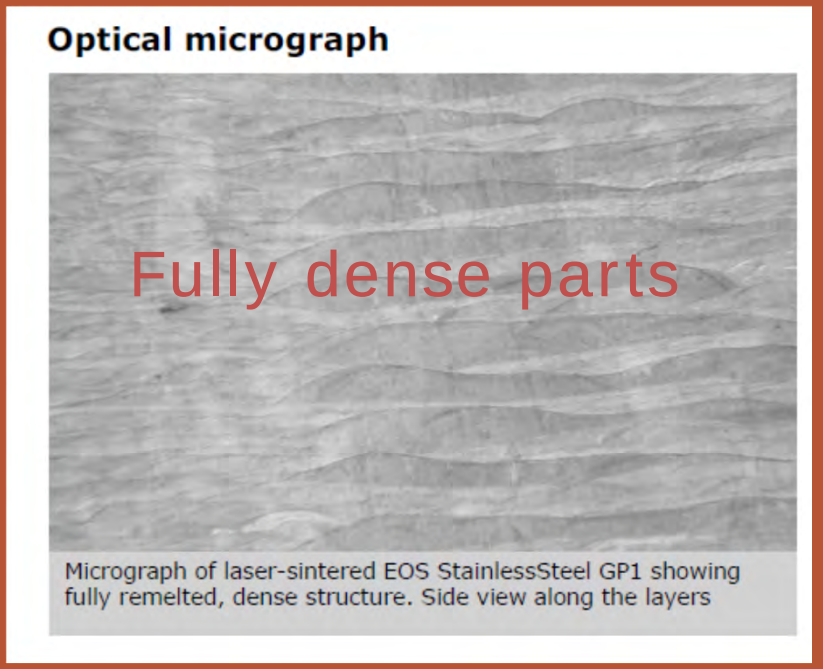
Post processing and inspection services are available for clients as well

Reverse Engineering

- Using the same tools, the AMRC can reverse engineer parts by starting with a 3D object
- The reverse engineering process begins by using inspection equipment to scan physical object dimensions into digital files

Inspection tools like 3D scanners and FARO arms capture digital image of 3D object

How good are the parts?



Geometrical Accuracy:
50 to 100 µm ± 0.05 – 0.07%

Minimum Structure:
0.6 mm sintering width

Accuracy and structure are dependant upon the orientation of the part when being printed

Equipment

EOS M280 DMLS

- 250 x 250 x 325 mm
- 400w Laser
- 20 – 40 µm
- Primary materials:
  - Maraging Steel
  - Stainless
  - Titanium
  - Aluminum
- Other available materials:
  - Direct Metal
  - Cobalt Chrome
  - Nickel Alloy

Equipment

EOS P395 SLS

- 340 x 340 x 620 mm
- 50w Laser
- 100 – 120 µm
- Polyamide
- Polystyrene

Equipment

Stratasys uPrint FDM

- 152 x 152 x 203 mm
- ABS / PLA

Post Processing

Sentro Tech Heat Treat Furnace

Fanuc Wire EDM Machine

Blast Cabinets

FARO Arm

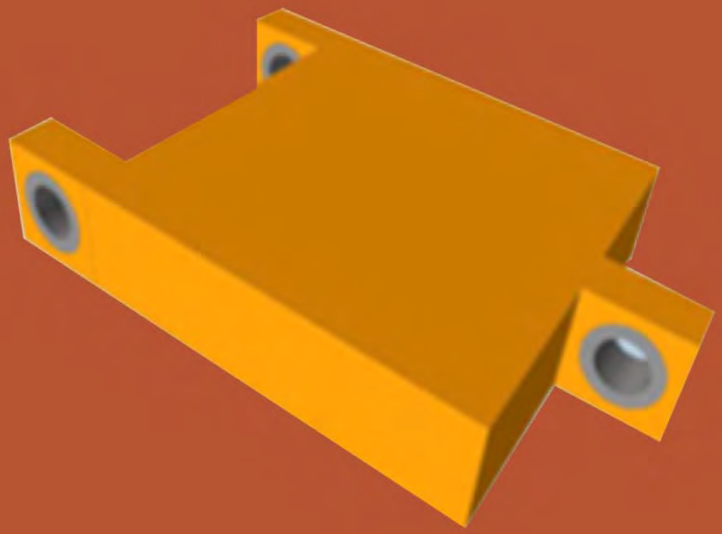
Additional post-processing capabilities are available through our partners, CANMET Materials Technology Laboratory and McMaster University. Both of these facilities are located near Mohawk College within Hamilton, Ontario.

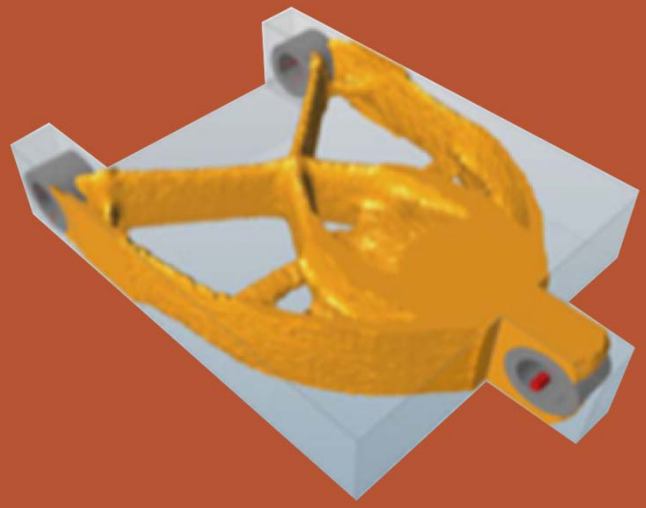
Can’t Drill a Curved Hole…

Conformal Cooling

…but we can easily print one!

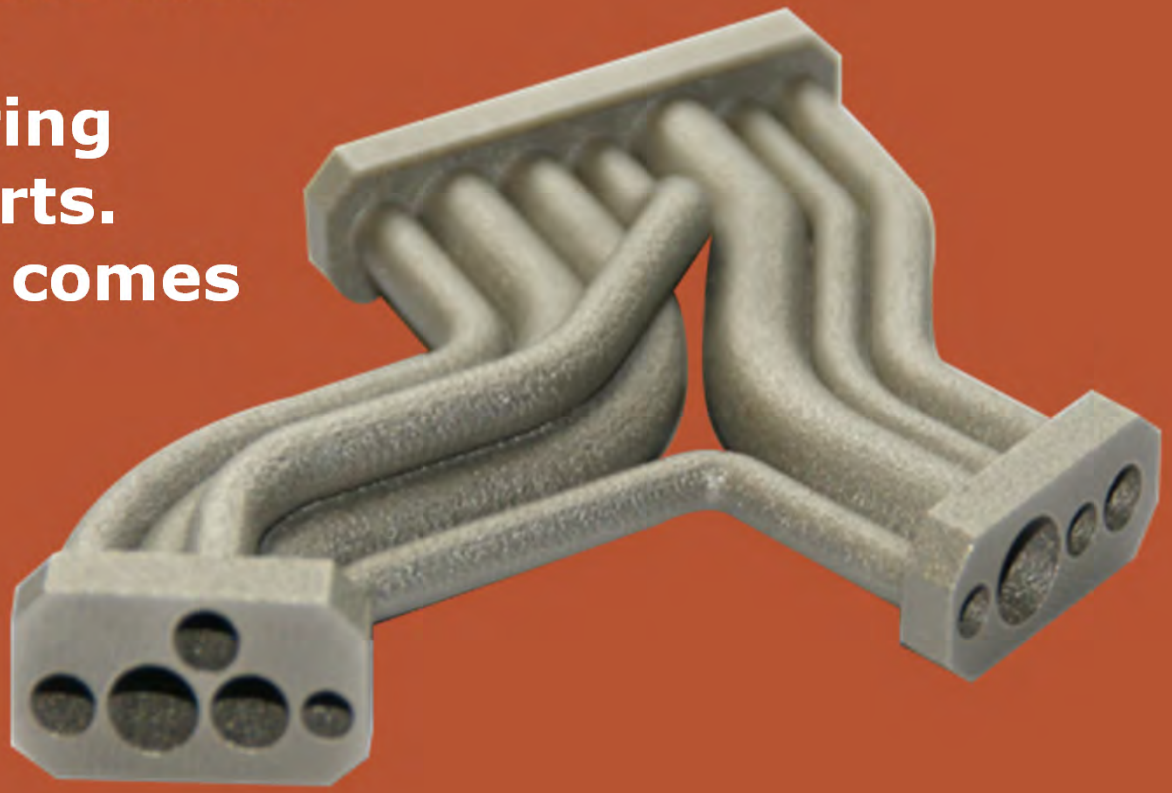
Space Optimization





Save weight & save manufacturing time

Additive is the ideal process for manufacturing complex parts. Complexity comes for free.



Integration

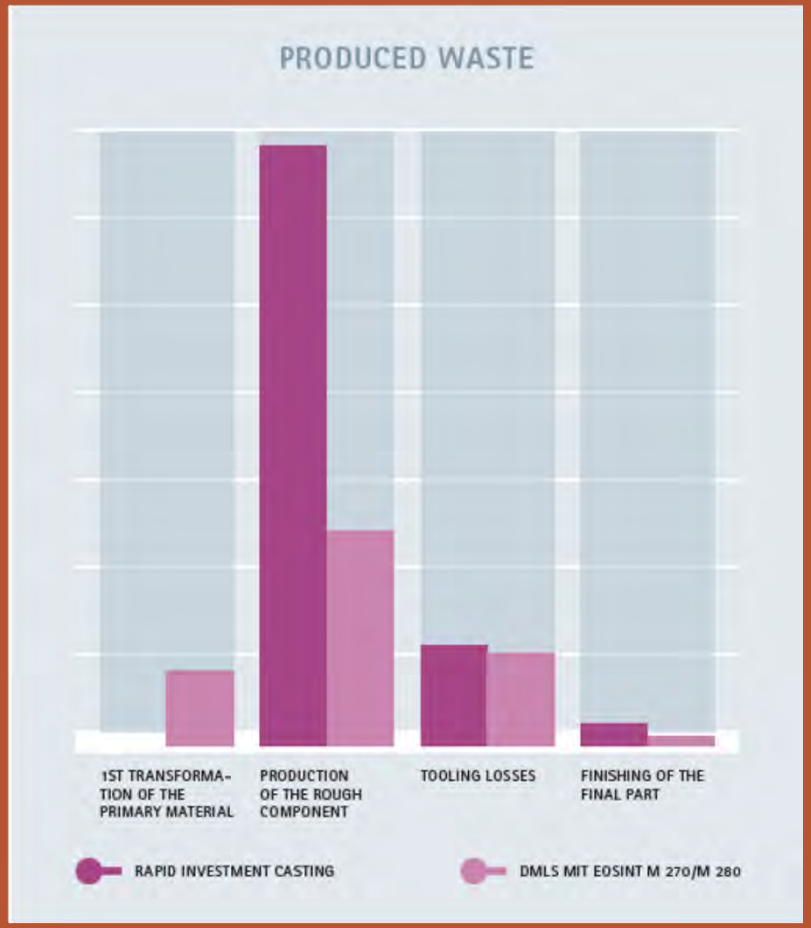
Traditional Method

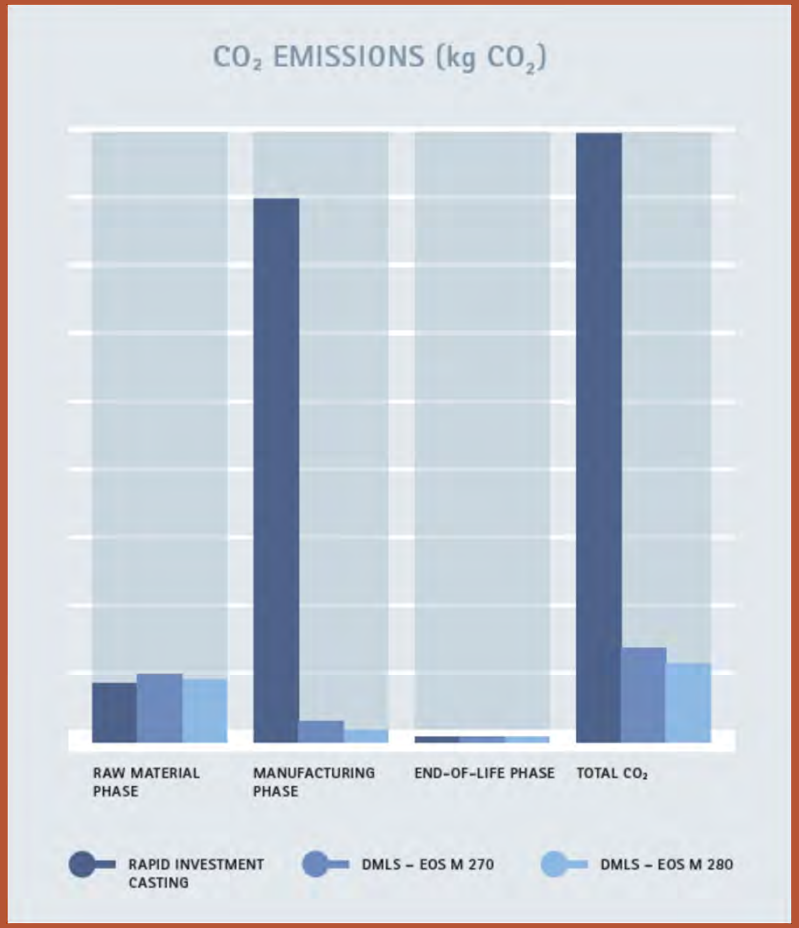
- 13 parts
- Stamping + sheet metal forming + fasteners

Additive Manufacturing

- 1 part
- Selective laser sintering
- Lighter weight

Sustainability





Advantages of Working with Mohawk

- Participate in applied research and design
- Produce rapid prototypes
- Focus on volumes to satisfy proof of concept/clinical trials
- Metallurgy/strength of materials testing services
- Business case study/cost justifications services
- Utilize funding grants from various agencies
- Work with co-op students and turn your idea into a research project
- Business friendly IP policy so you retain ownership of products and designs

Contact:

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http://www.mohawkcollege.ca/additive-manufacturing-resource-centre.html

Additive
Manufacturing
Resource Centre

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