

Technical Service Bulletin

Service For: Vineland Research and Innovation Centre **Sector:** Horticulture



Vineland is a world-class research centre dedicated to horticultural science and innovation. Their researchers in Applied Genomics, Consumer Insights and Horticultural Production Systems work together to deliver innovative products and production solutions that address the needs of the horticulture industry and advance Canada's research and commercialization agenda.

TECHNICAL SERVICE CHALLENGE:

Vineland needed a custom vacuum cup for a robotic carousel to pick-and-place horticultural products. As this technology is something that is still in the early stages of development, they needed a quick way to produce different sizes of vacuum cups, as well as an as-of-yet unknown quantity of them.

DELIVERABLES:

Research and Innovation proposed that instead of 3D printing the vacuum cups themselves, we could design and 3D print a custom mold which would allow Vineland to make their own vacuum cups out of a real urethane rubber compound, and make them as many times as they wished. Different mold geometry, material compounds, sealers, and release agents needed to be researched for this effort.

EQUIPMENT USED:

Autodesk Design Suite Software - 3D Printing - Fortis 400mc which was acquired thanks to an NSERC ARTI grant.

RESOURCES:

1x Niagara College TAC Staff, 1x - 4 year Niagara College Mechanical Engineering Technology student

DURATION:

3 Weeks

BENEFITS TO INDUSTRY PARTNER:

The second attempt at testing saw the successful development of a quality vacuum cup. We delivered Vineland with four ready-to-test vacuum cups, the molds and cores, along with enough products to make upwards of 200 more individual vacuum cups. These have since been installed on their robotic arm, and are currently being used as an integral part of their detection and pick-and-place robotic system testing.

BENEFITS TO NIAGARA COLLEGE:

Real world job experiences for our students which foster further learning opportunities utilizing innovative solutions using advanced manufacturing technologies.

For more information, contact Charles Lecompte, Senior Application Specialist, at 905-735-2211, ext. #7173 or clecompte@niagaracollege.ca

Access Technical Services at the Walker Advanced Manufacturing Innovation Centre, your company's R&D partner, located at the Welland Campus of Niagara College. We provide a key competitive advantage to industry, offering access to cutting-edge equipment – and related services – for the development of products and manufacturing processes.

We specialize in

TECHNICAL SERVICES

Including: 3D Printing, 3D Design, 3D Measurement and Scanning

AUTOMATION

Mechanizing a process to decrease human labour and increase efficiency

PRODUCT DESIGN AND DEVELOPMENT

Creating a new product for deployment within your business or to be sold to a customer

REVERSE ENGINEERING

Discovering the technological principles of a device, object or system through analysis of its structure and functions

LEAN MANUFACTURING ASSESSMENT

Analyzing and improving an existing process within your operations

PRODUCT RE-DESIGN AND IMPROVEMENT

Revamping an existing product to improve quality and/or adapt to changing market conditions

Resources & Capabilities

- *Rapid Prototype Machine*
- *Laser Scanners (small-scale and room-size)*
- *Vision System*
- *Hand Measurement Tools*
- *3D Computer-Aided Design*
- *3D Factory Design*
- *Physical Simulations and Modelling*
- *Engineering Design*
- *Electronics and Electrical*

“Niagara College brings youth, enthusiasm and knowledge to a tough playing field where every dollar is critical to the survival of many small businesses.”

~Bob Benner, Hamill Machine Company Inc.

