TECHNOLOGY OVERVIEW

Self-Propelled Rotary Turning Tool

Background

The sustained use of superalloy, hardened steel, and structural ceramic materials in applications that require high temperature and corrosive-resistant properties pose a challenge for machining. For instance, these materials are found in car or jet engines and medical prostheses, and conventionally the aerospace, automotive, and medical industries resort to disadvantaged grinding and casting processes that yield high energy consumption and low material removal rates. Rotary cutting tools present to be a solution for machining in these industries, however, few are commercially available.

Technology Overview

The innovative research led by Dr. Hossam Kishawy and Grant Parker has created this self-propelled rotary turning tool, developed for the automotive industry and applicable to medical device applications, offering numerous advantages. It utilizes self-propelled tools, resulting in reduced friction, heating, and the need for cooling, toxic coolants, and energy. Maintenance is easy, minimizing downtime and operator costs. By using off-the-shelf parts, equipment costs are lowered, and supplier flexibility is increased. It excels at turning difficult materials like titanium and accommodates various inserts such as carbide and ceramic. The technology promotes environmentally friendly operations with reduced waste and energy requirements. Demonstrated trials have proven its high-quality performance in surface roughness and chip formation.

Business Opportunity

Ontario Tech University looks to work with companies in a way that helps develop a relationship that is tailored to their interests. Thus, are happy to explore collaborations, licenses, options, assignments, etc. It is the belief that only through enabling the company to utilize its business model will Ontario Tech University technology be able to make an impact within the marketplace.

Inventors:

Hossam Kishawy and Grant Parker

Publication:

US Patent: US9511420B2
World Intellectual Property Organization: WO2012167360A1
Self-propelled rotary tool turning difficult-to-cut materials

About Ontario Tech University

Ontario Tech University conducts high-quality, rigorous research designed to meet the research and development needs of business and industry and benefit society. Whether the focus is on developing hydrogen-from-nuclear or fuel-cell technologies, improving network security, or understanding youth crime, we are committed to interdisciplinary research and development that addresses social, environmental, health, and economic challenges.