Western Engineering

MME 4499 – Mechanical Engineering Capstone Project Proposal Document

Name of Sponsor	Schaeffler Canada Inc.

Title of Project

Bearing Vertical Storage Units

Brief Project Description

Superfinishing processes require multiple machines. During changeovers these machines must be shut down sequentially, and limited buffer quantities result in lost operational time, both from depletion of current components, as well as delay in production of new components.

Project to design vertical storage units to load and store parts vertically, such to minimize floor space, that will allow for increased buffers between machines as well as controlled handling of 2 part types (current production and future production). Once a changeover is initiated and the preceding machine is shut off, the storage device will begin emptying out the buffer to supply subsequent machine. Then once preceding machine changeover is complete it will begin storing the new part type while completely emptying storage of old part type ensure maximum uptime of machines without risks of mixed components.

Parts are DGBB, SRACBB, and DRACBB inner and outer rings, with following dimensions:

- Max OD – 160.7mm
- Min OD – 10mm
- Max width – 100mm
- Min width – 10mm

Desired Project Deliverables

- Selection of method/ system to sort vertically store IRs & ORs within available grinding/ honing space, for all production strings
- Report describing how selected method will meet specified constraints and targets.
- QCD report of method with respects to functionality and budget.
- Implementation plan for procurement/ fabrication of selected system, and any key information or contact details that would be relevant for Schaeffler Canada Inc. to order and install such system after completion of this capstone project.
- If solution is team designed, a functional prototype with detailed description of how it will be scaled to full production and accommodate all rings and production strings