

OMIC R&D TECHNOLOGY BOARD

CONCEPTUAL ABSTRACT



TITLE: Exploring Mill-Turn machine strategy to replace traditional Tombstone setup.

RELATED ROAD-MAPPING DESIGNATION ID#: M3

SUPPORTIVE INDUSTRY: Boeing, Seco, Heidenhain, WFL

PROJECT TYPE: General Project.

PROBLEM STATEMENT (What Are We Trying to Solve?): In traditional tombstone setups a part will require 4 different lays that involve roughing and finishing operations on each side of the part. This creates downtime to setup the next operation or requires the manufacturer to purchase a machine with a pallet changer which incurs additional cost into the purchase. With a millturn, one can eliminate the need to rotate the part manually and move directly from roughing operations into finishing operations with no machine intervention utilizing the C axis rotation of the turning spindle(s).

PROJECT DESCRIPTION: The project will test a structural beam-style facsimile part or industry candidate machined in a traditional tombstone setup with key performance indicators like program runtime, program material removal rate, process material removal rate, setup downtime and overall part quality. A standardized tooling package will be used for both parts. This baseline data will be tracked as the same part undergoes its machining in a millturn using the C axis capabilities to rotate the part and present the sides to be machined without operator intervention. A full analysis of projected tooling costs, part output rate, part quality and program speed will be created to highlight the improvements and shortcomings between the two machining methods. These methods can be performed virtually via machine simulators to accurately depict the two processes. A total cost analysis of the two processes will be created after data has been gathered.

Identify Related OMIC R&D Resources:

- WFL M50 Millturn
- Doosan DVF 5000 5 axis mill
- Wenzel CMM
- Capture 3D ATOS scanner
- Simulators and systems

PROJECT DELIVERABLES:

- Design a facsimile part to represent industry products.

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- Design a universal stock profile to be used in both methods.
 - Create standard cutting tool package for both methods.
 - All data from test organized and tracked in report.
 - Related Program Files
 - Report and Presentation to OMIC Tech Board
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