Integration of Discrete Machining Models into an Open-Architecture Machine Tool Controller

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Project Goals

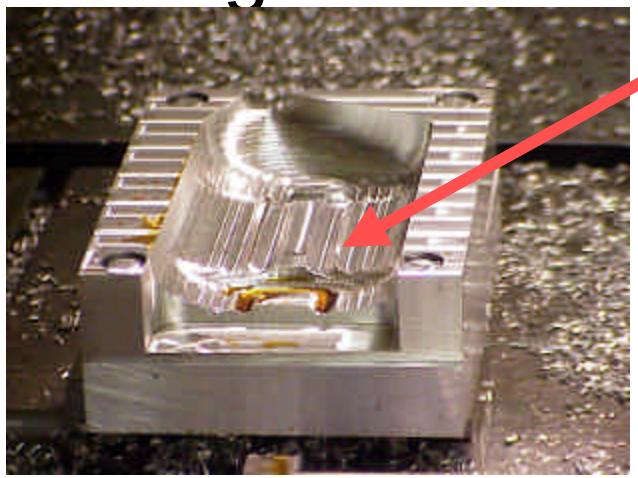
- Cutting Condition Optimization
- Improved Productivity of NC Machining
- “Smarter” NC Machine Tools
  - Geometric and Mechanistic Cutting Models
  - Sensor Rich
- Develop “on-line” Model Calibration

MDSI Open Architecture Controller retrofit on a FADAL VMC
Design and Manufacturing Lab - University of New Hampshire

Example: Finish Machining of Bottle Mold

Peak Forces reduced by 70%
(vs 30 ipm constant feedrate)

Cutting time reduced by 74%
(vs 7 ipm constant feedrate)



Large variations in cusp height create uneven forces for finish machining