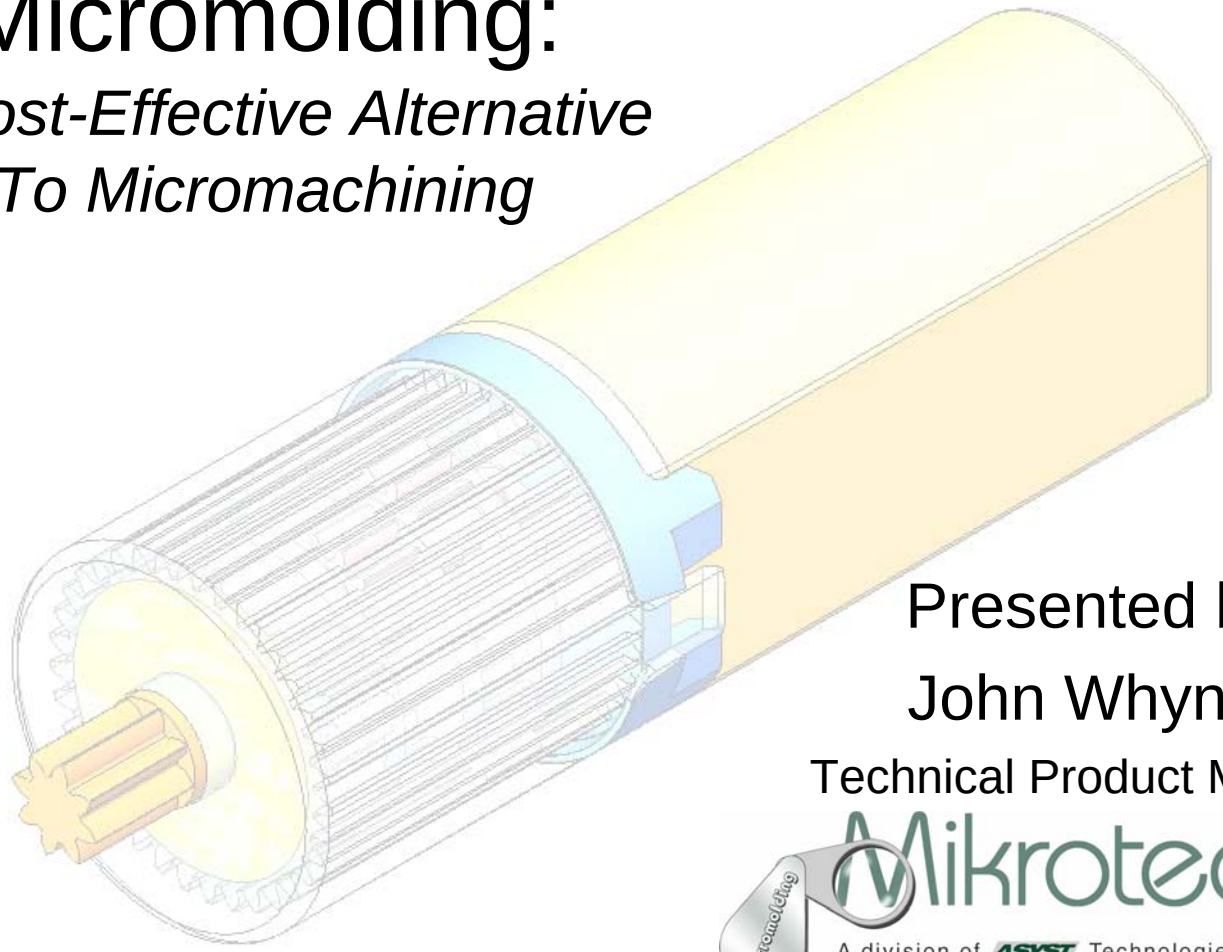
Micromolding:

A Cost-Effective Alternative To Micromachining



Presented by:

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Mikrotech

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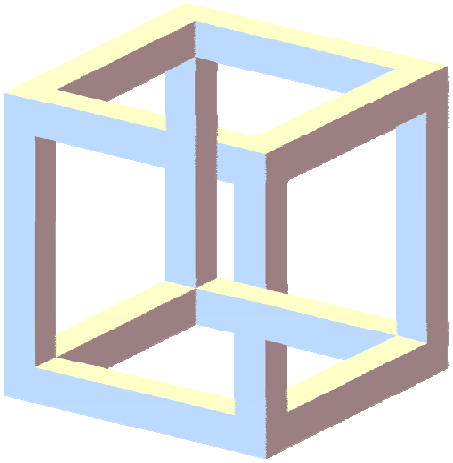
For Parts That …

Are Really Small
(Less than 1 $cm^{3)}$



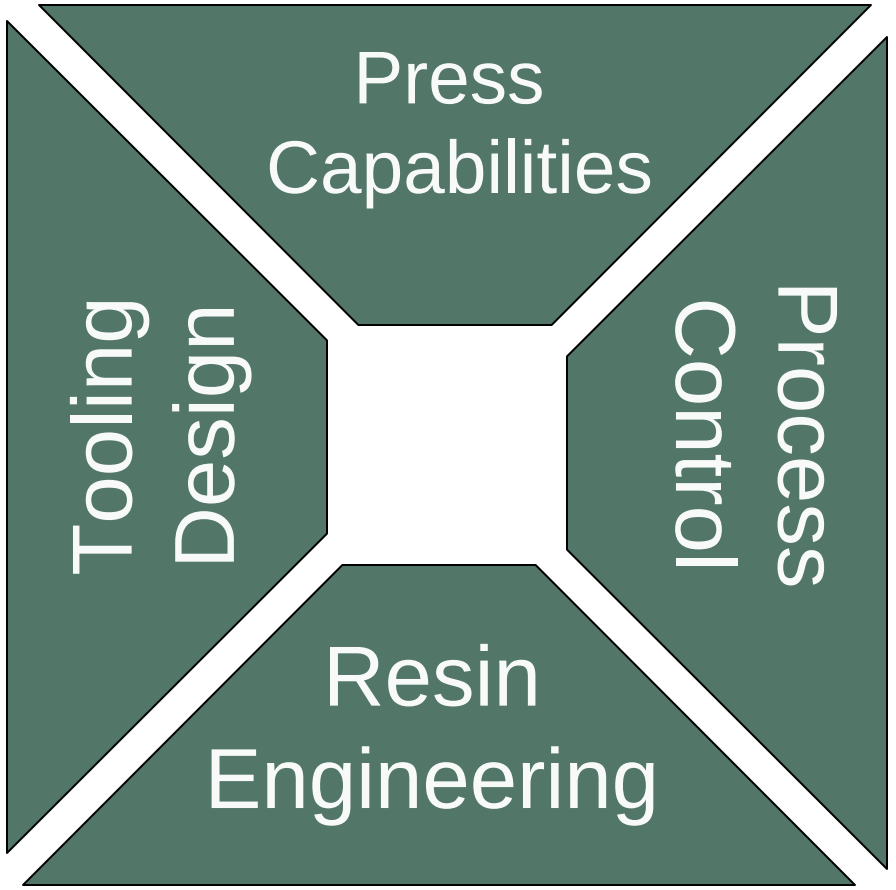
Have Complex Geometries

Require Tight Tolerances

Micromolding has changed the design landscape

But that is not really news to any of us here.

Micromolding Technology Has Advanced Rapidly



But that is not really news to any of us here.

But What If My Volumes Are Low?

was

Micromachining ~~is~~ the only feasible alternative.

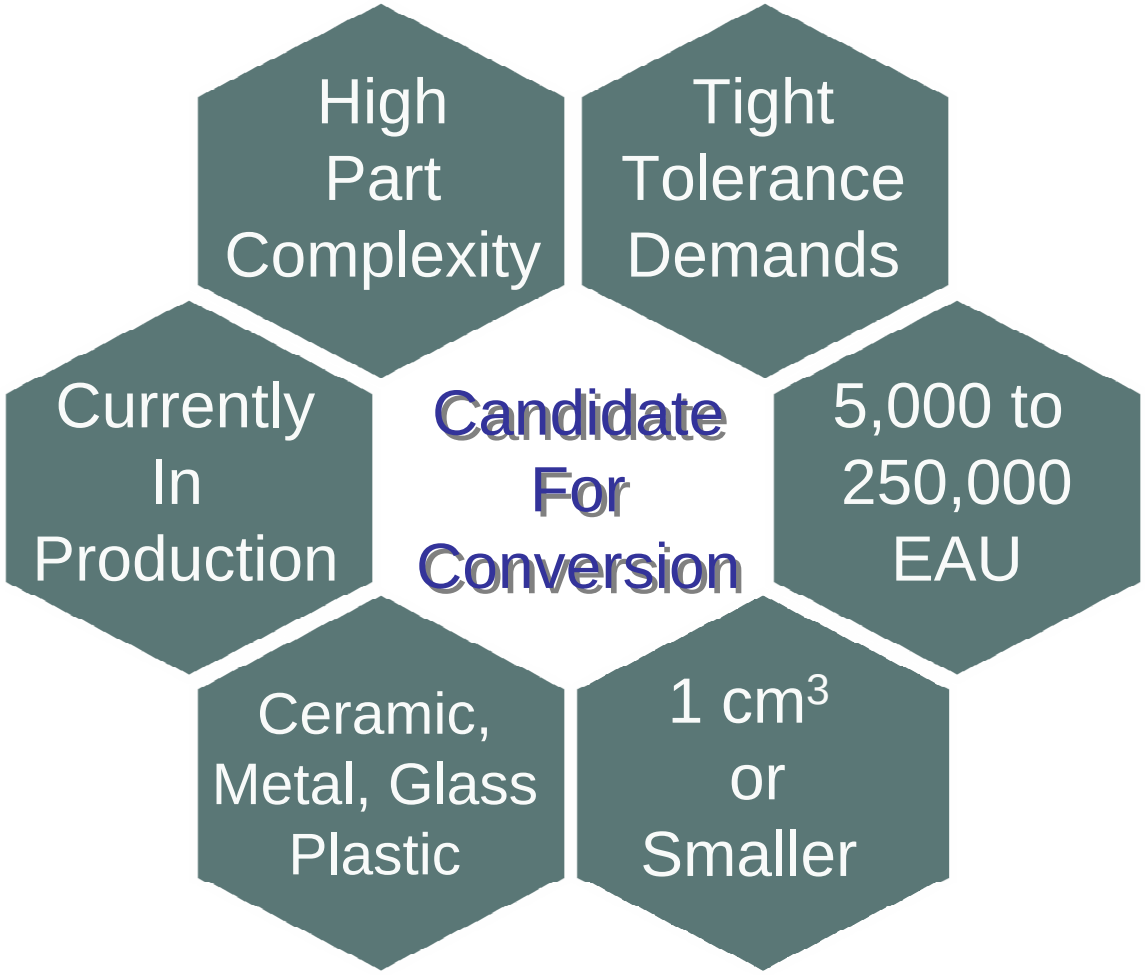
Micromolding is creating
new options for
Low - Moderate Volume parts

Molding vs Machining Comparison

	Micro Machining	Micro Molding
Advanced Materials	✓	✓
Design Complexity		✓
Precision Tolerances	✓	✓
Part Count Reduction		✓
Particle Contamination		✓
Surface Finish		✓
Upfront Cost	✓	
Piece Part Cost		✓

ADVANTAGES

Optimal Conversion Criteria



Obstacles for Conversion to Micromolding

- Materials Concerns
  - "Is a suitable compound available?"
- Revalidation Process
  - "Takes time and money."
- Re-tooling Costs
  - "We are already in production."
- Risk of Failure
  - "If it ain't broke …"

Does the payback

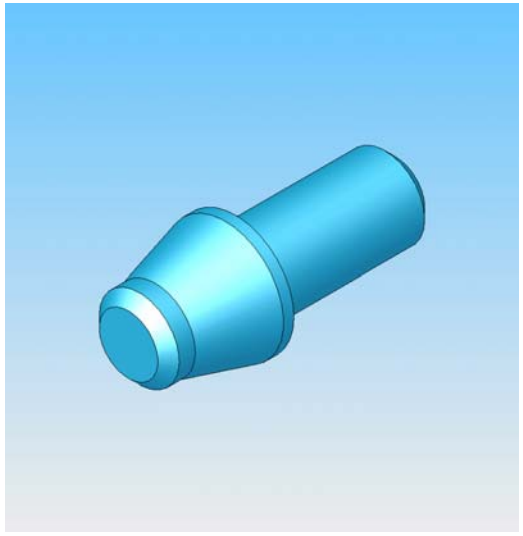
justify the expense and risk?

Conversion Case Studies

Part Description:

PIVOT

Stainless ⟶ PEEK



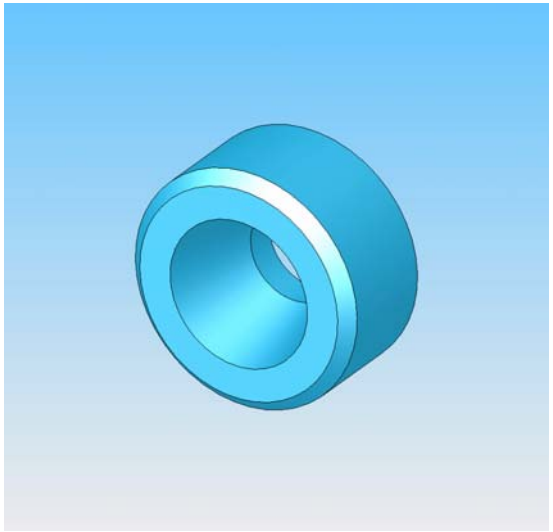
EAU	10,000
Machined Cost	$10.00
Micromolded Cost	$2.50
Annual Savings	$75,000
Tooling Cost	$15,000
5 Year NPV	$270,672

Conversion Case Studies

Part Description:

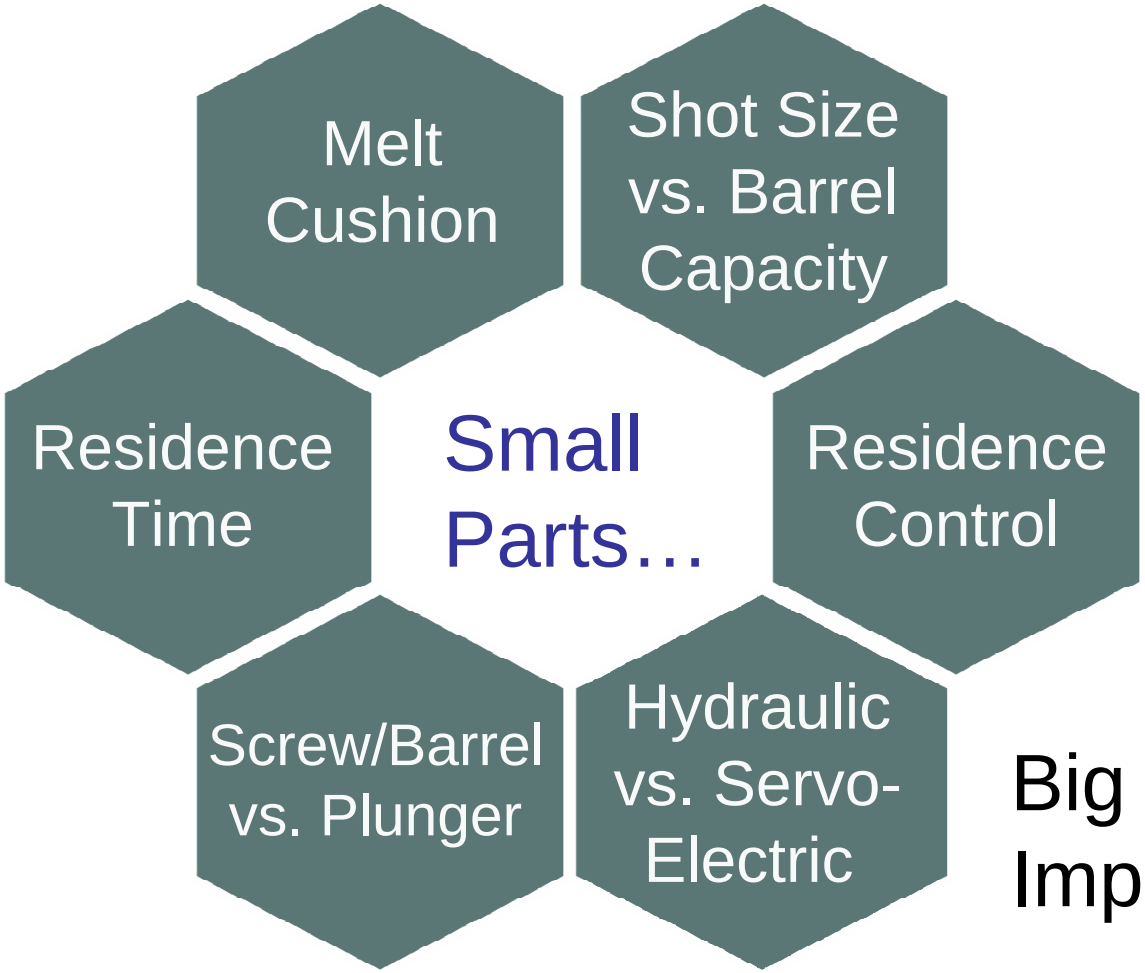
WASHER

Stainless ⟶ PEEK



EAU	10,000
Machined Cost	$9.00
Micromolded Cost	$2.20
Annual Savings	$68,000
Tooling Cost	$13,500
5 Year NPV	$245,500

Equipment & Process Variables

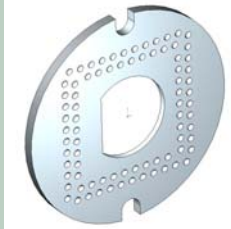


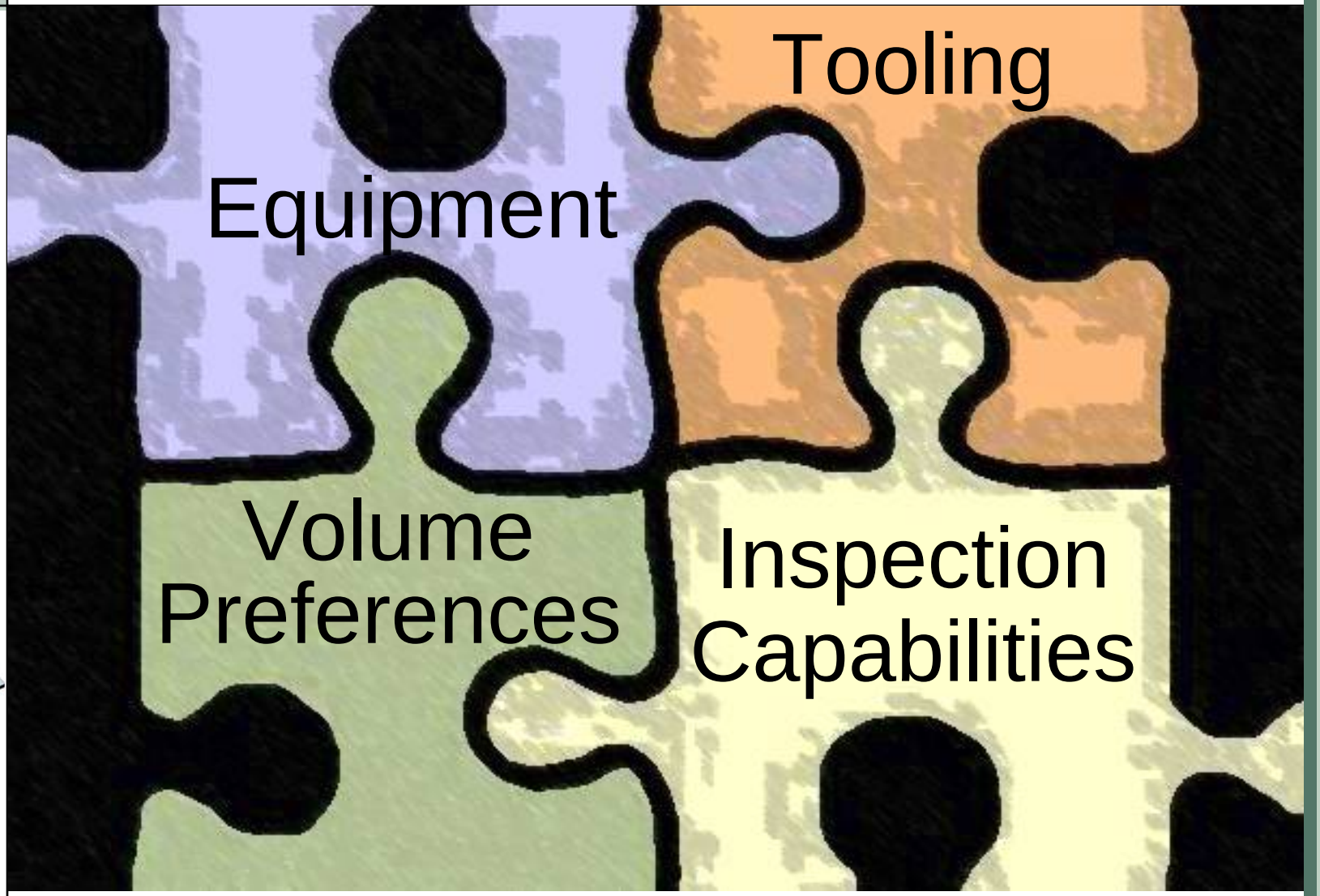
Big Implications

Materials Considerations

- Performance Specifications
- Advanced Properties
- Micro / Nano Compounding
- MIM vs. Polymer Blends

Molder Selection - Finding The Right Fit





Getting Started

1. Identify Conversion Candidates
2. Evaluate Potential Molders
3. Request Moldability Assessment
4. Evaluate Material Alternatives
5. Conduct Cost/Benefit Analysis
6. Prototype, Validate, Produce

Questions?

1. Identify Conversion Candidates
2. Evaluate Potential Molders
3. Request Moldability Assessment
4. Evaluate Material Alternatives
5. Conduct Cost/Benefit Analysis
6. Prototype, Validate, Produce

Thank You

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