

# TOOLING



ENGINEERING  
FOR OPTIMUM  
PERFORMANCE

# | ABOUT US

MGS Tooling is your single-source provider for engineering, design, mold construction, process simulation, sampling, mold and part qualification and complete turnkey manufacturing system validation. Our processes ensure an optimized production launch.

Up-front part engineering (design-for-manufacturing) facilitates highly capable mold design and production efficiencies. This results in cost-effective injection molds that have an extended production life and are easier to maintain.

MGS proudly ranks among the top 10 largest custom tool shops in North America. Our state-of-the-art facilities employ the latest in mold making technologies:

- High speed / high precision machining, CNC wire and CNC die sinking EDM with integrated CMM validation
- Three and five-axis graphite and steel milling with integrated CMM validation
- Comprehensive process simulation (mold fill, pack, cool, distortion analysis)
- Robotic tooling and material handling

MGS Tooling is a division of MGS Mfg. Group. Founded in 1982, MGS is a leading global provider of optimized manufacturing solutions for high precision plastic products. With more than 1,400 employees at 12 facilities here and abroad, MGS is the ideal partner to meet your greatest challenges and make your program successful.



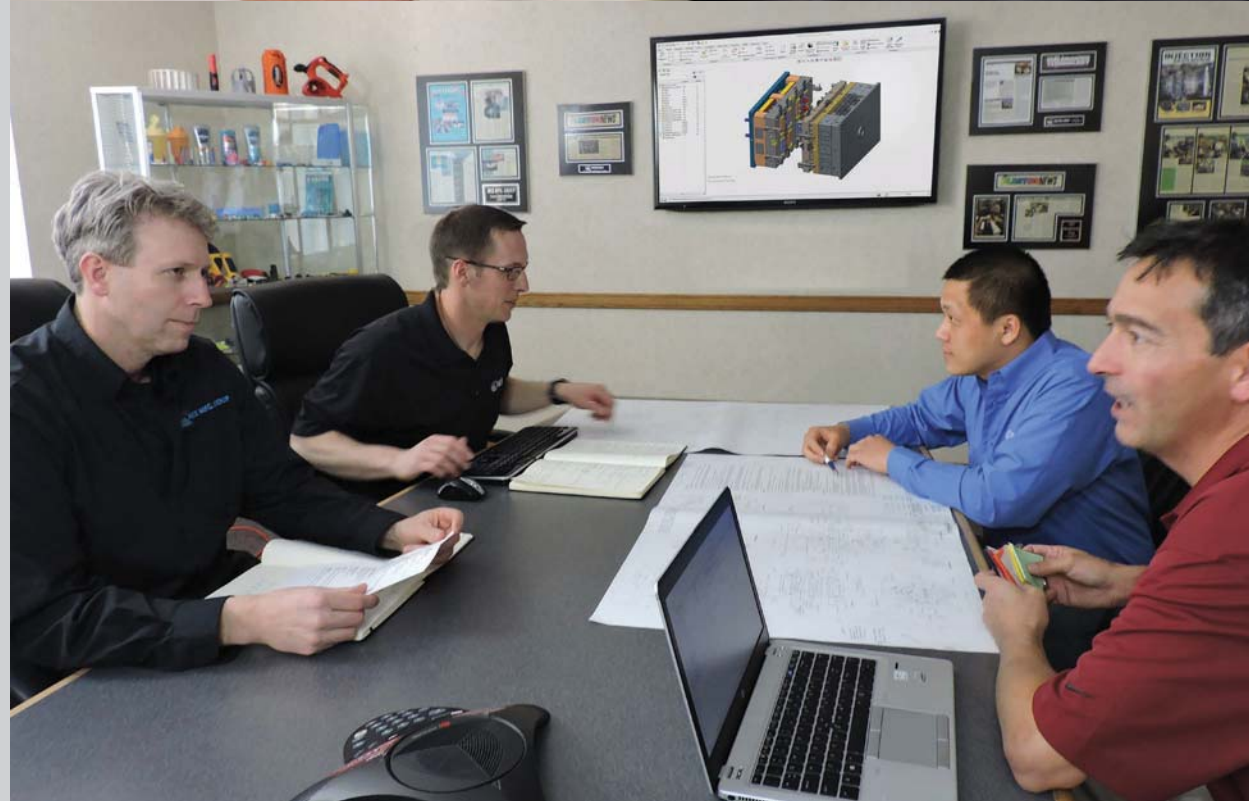
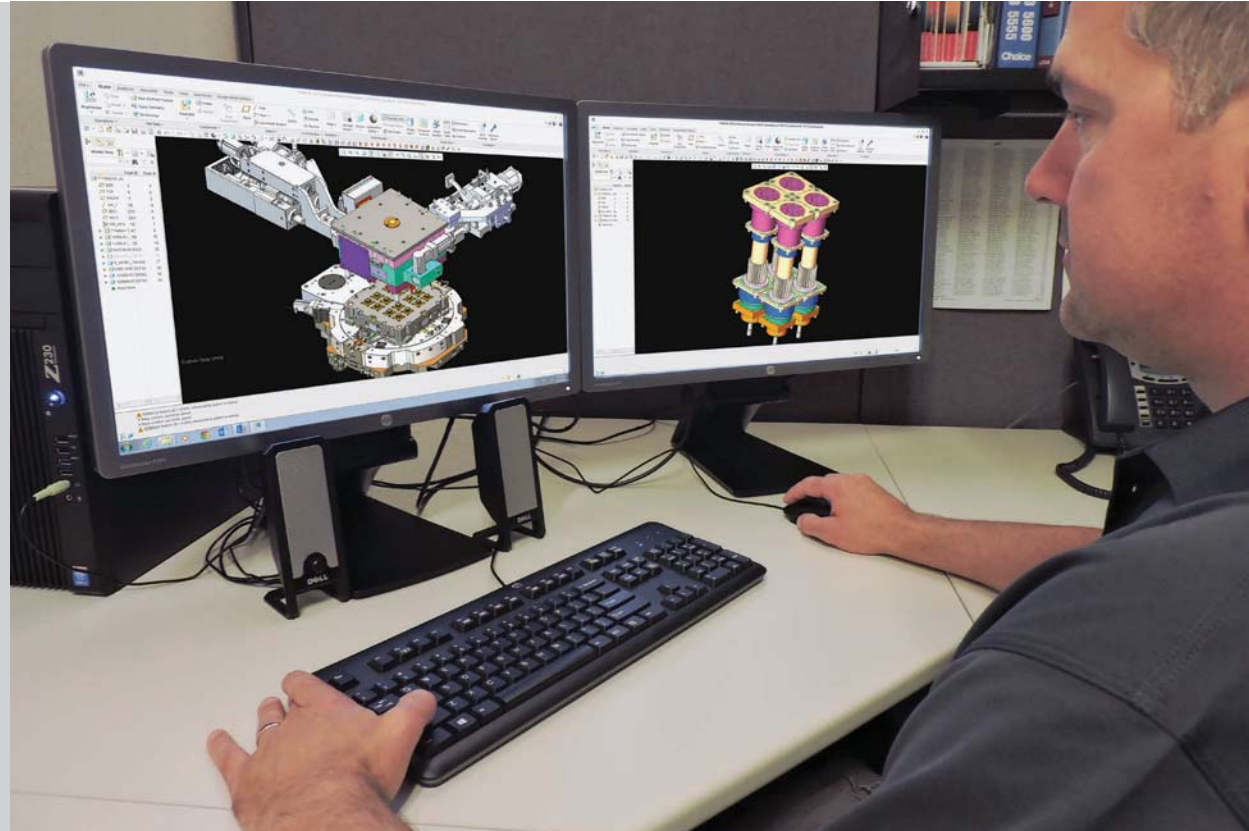


# ENGINEERING AND DESIGN

Successful mold design and manufacturing efficiencies are the result of our commitment to early stage design-for-manufacturing and optimized product engineering.

- Creo Parametric
- Creo Elements Direct
- Siemens PLM NX
- SolidWorks
- MasterCAM
- AutoCAD
- Catia
- Cimatron
- Vericut
- Esprit
- 3D-Evolution
- PC-DMIS

MGS designs and engineers world-class tooling systems to ensure cost-effective and long term piece part production with ease of maintenance.



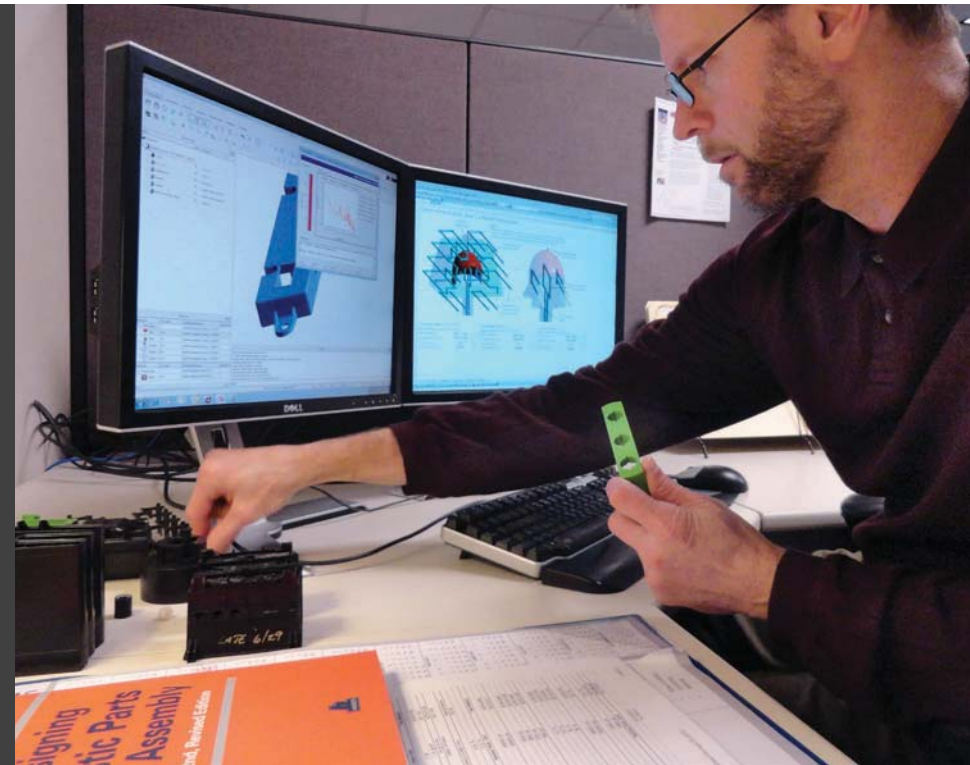
# PROCESS SIMULATION

MGS Comprehensive Process Simulation and New Product Development Services can be leveraged to help your engineering team develop world-class product designs faster and with potentially more rewarding economic solutions. Our focus for customers is to help drive product development towards lower cost and higher quality while also targeting realization of product release goals.

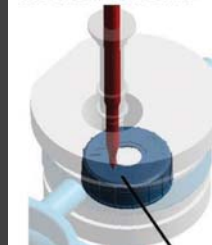
Our ultimate goal is to develop the strongest and most robust production tool design to enable the construction of an injection mold capable of producing low-cost, high-quality parts over the course of millions of cycles.

The MGS portfolio of Comprehensive Process Simulation Services includes:

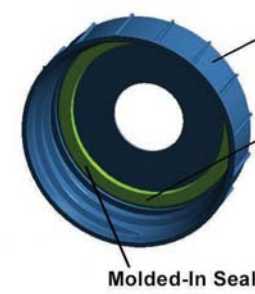
- Engineering assistance with early part design evaluation for manufacturability
- Simulation software services to provide fill/pack/cool and distortion analysis through every stage of part and tool design development
- Prototype part production through an array of 3D Additive Manufacturing options
- Engineering assistance during the development stages of prototype and high-production tooling
- Engineering assistance in the resolution of product design or production tooling problems



**MGS 3-Shot  
Molded Closure**

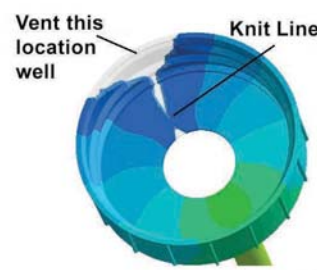


**Injection Mold  
Cavity**

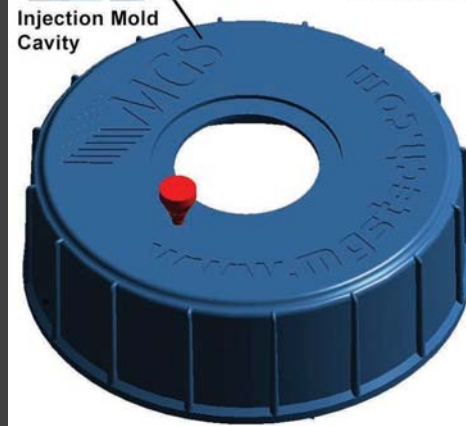
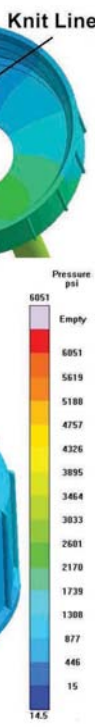


**Molded-In Seal**

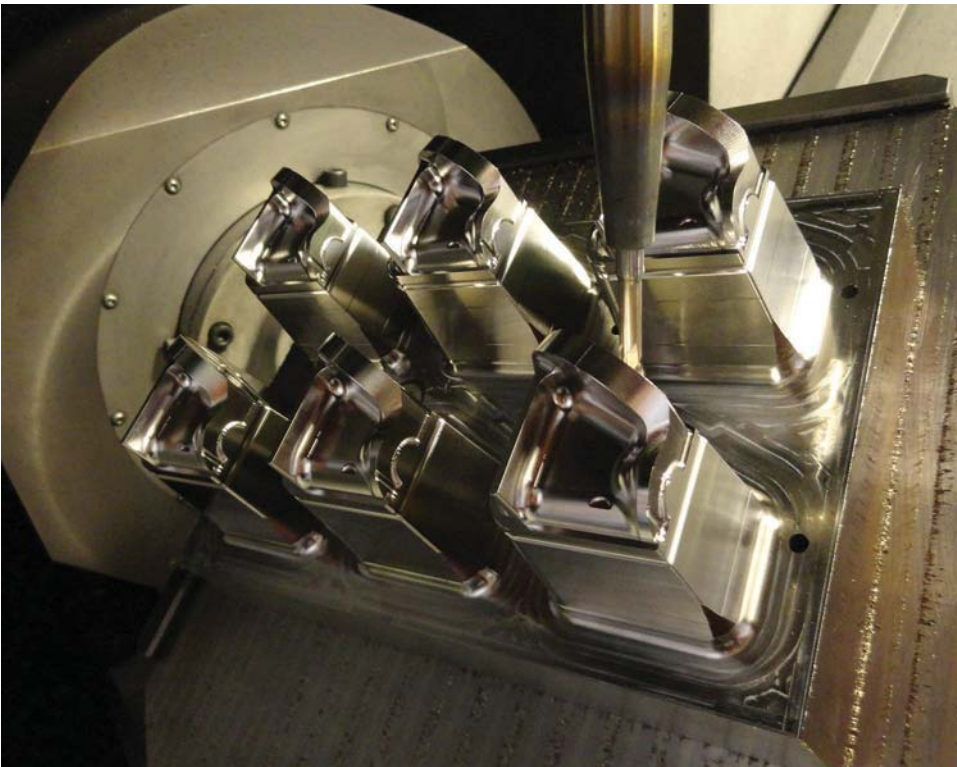
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Part Class	ID 1
Part	ID 1
Insert	ID 1
Runner	ID 1
Gate	ID 1
TC Runner	ID 1
Material	ID Label
Insert Class	ID 1
Insert	ID 1
Material	ID Label
Insulation Class	ID 1
Insulation	ID 1
Insulation	ID 2
Insulation	ID 3



**Vent this  
location  
well**







# MOLD MAKING

## Prototype

- Part samples (3D Print FDM, SLS, SLA, Digital)
- Molded part samples (Digital Print Tooling)

## Pilot (proof-of-performance)

## Production Molds

- Multicavity
- Single shot
- In-Mold Closing
- Auto-Unscrewing
- Thin Wall
- Insert
- Collapsible Core
- Stack
- Tandem
- Hot Runner

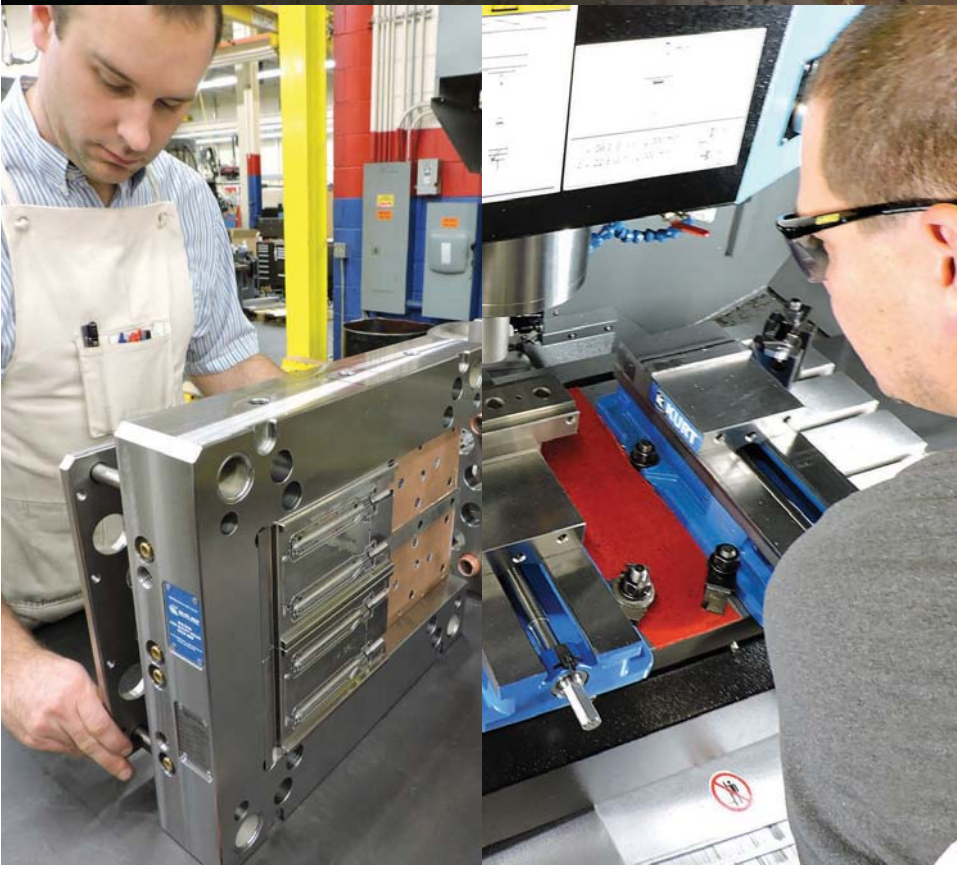
## Multishot (multiple material)

- Robotic Transfer
- Core Back
- Rotary Platen
- Indexing Plate
- Rotary Stack
- Rotary Spindle

## End-of-Arm Tooling

## Fixtures

- Inspection
- Degating
- Decorating
- Cooling





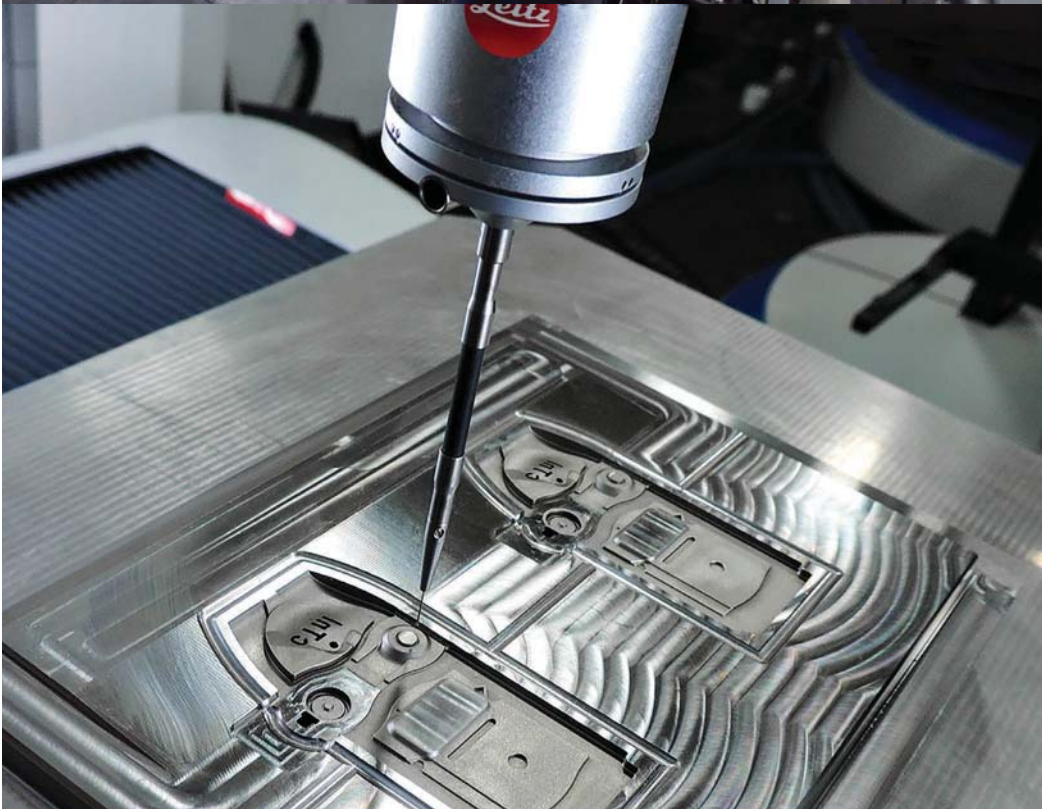


## AUTOMATED MOLD MAKING

MGS is a world leader in the integration of automated machining and mold making validation technologies.

Our automated work cells integrate machining and validation technologies, combining:

- High speed/high precision, three and five-axis hard cutters and graphite machine centers
- Wire and RAM electronic discharge machines (EDM)
- Three and five axis robotics
- Vision systems
- Coordinate Measuring Machines (CMM)



MGS personnel and equipment hold tolerances daily at  $\pm .0005$ . When required by the project and supported by the customer's budget, our shop can hold  $\pm .0001$ .

The combination of an exceptional team and investments in industry-leading machining and engineering technologies results in a highly accurate and repeatable process of creating precision engineered steel.



# SAMPLING

Sampling and development remain a critical phase in the development of a production tooling system. MGS Tooling's dedicated personnel and equipment provide a comprehensive evaluation of mold performance — mechanics, plumbing, plastics delivery and ejection — to efficiently facilitate the transition from mold build to production run.

Support equipment includes: material loading systems, mold heaters, robots and material dryers.

## MGS Sampling includes:

- Mold functional sampling
- Material evaluations
- Short runs

## Additional capabilities:

- First article inspection
- Process development
- Advanced Product Quality Planning (APQP)
- Design of Experiments (DOE)
- Capabilities studies
- In-house tool shop

Services also include complete turnkey manufacturing systems (tooling, robotics, automation technologies, specialty molding equipment, conveyors...) staging, validation, transfer and launch.







# | CONTACT US

We invite you to take a tour of our mold making and sampling facilities. Ready to take action? Send us your RFQ/RFP and allow our engineers, designers, programmers, toolmakers and project managers to prove MGS Tooling is precisely the right choice.

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**Industries:** Healthcare, Consumer, Packaging, Electronics, Automotive, & Industrial