

PREMOLD CORP

Low Quantity Injection Molder for the Life Science Industry

Reaction Injection Molding (RIM)- Low Quantity Injection Molding for the Life Sciences Industry

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Section I. Advantages of RIM

- ❑ Economical For Low Quantities
- ❑ Lower Cost Molds
- ❑ Shorter Tooling Lead Time
- ❑ More Design Freedom



Section I. Advantages of RIM (cont.)

□ Economical For Low Quantities

- Lower set-up and run costs



Section I. Advantages of RIM (cont.)

❑ Lower Cost Molds

- Lower molding pressures
- Lower mold temperatures
- Side actions cost less



Section I. Advantages of RIM (cont.)

- Shorter Tooling Lead Times
 - Faster machining aluminum molds



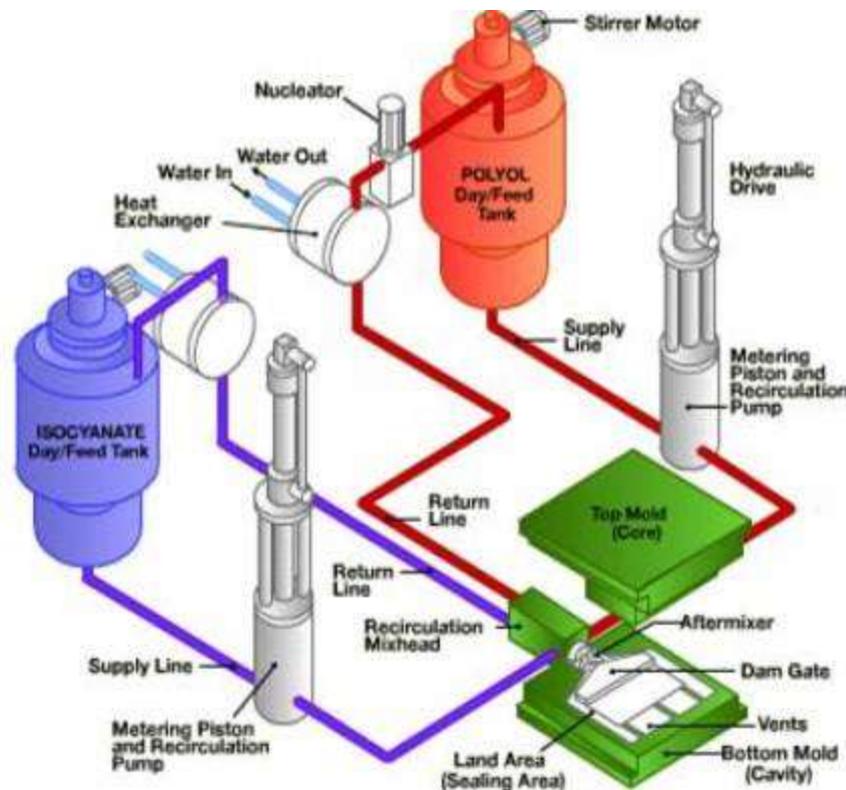
Section I. Advantages of RIM (cont.)

- More Design Freedom
 - Variable wall thickness within the same part
 - Bosses and ribs can be larger and taller



Section II. How the RIM Process Works

- ❑ Two liquids are mixed as they're injected into the mold



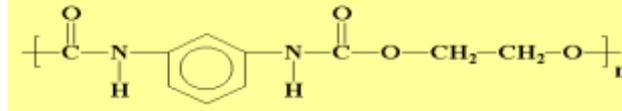
Section II. How the RIM Process Works (cont.)



Rim Dispensing Unit

Section II. How the RIM Process Works (cont.)

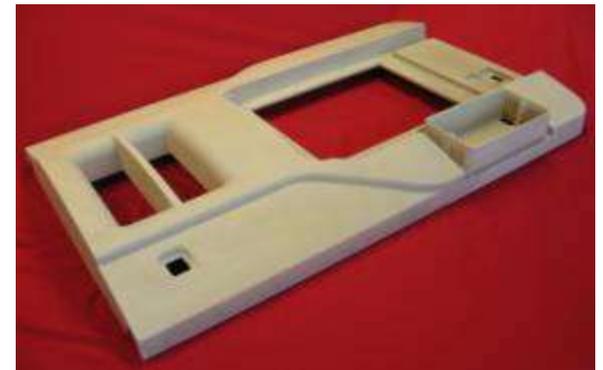
□ Chemical reaction



between two liquids



creates thermoset plastic part



Section II. How the RIM Process Works

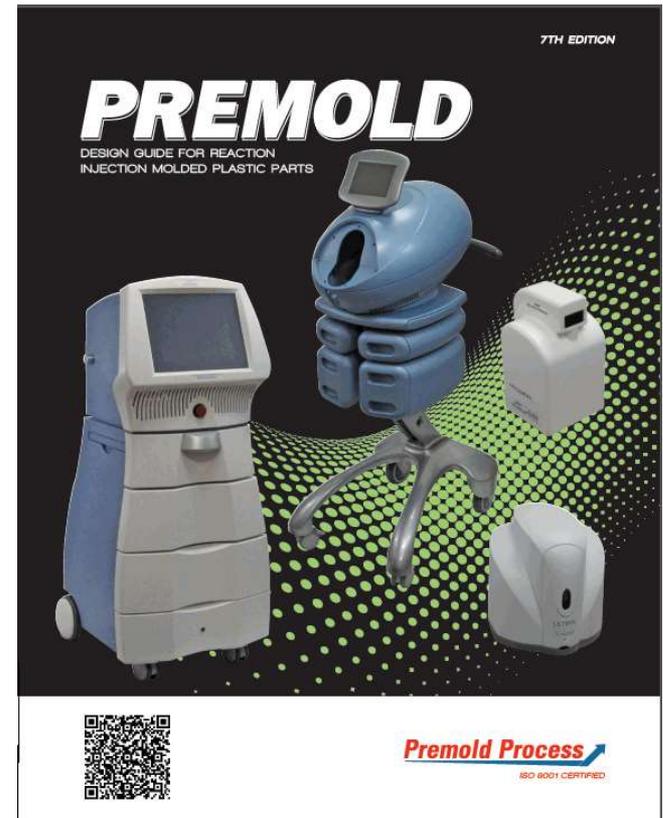
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- ❑ Less than 50 psi molding pressure
 - Process based on resin flow to fill mold instead of high pressure to force resin into mold
 - RIM presses tilt and rotate molds to compound angles to facilitate filling molds
- ❑ Mold temperatures of 180 F, resin starts at 100 F, peak exothermic heat of 250 F

Section III. Part Design Advantages

- ❑ Easier to design for than high pressure injection molding
 - RIM Design Guide available



Section III. Part Design Advantages (cont.)

- ❑ More forgiving of variable wall thickness
- ❑ Larger bosses and ribs can be used without sink



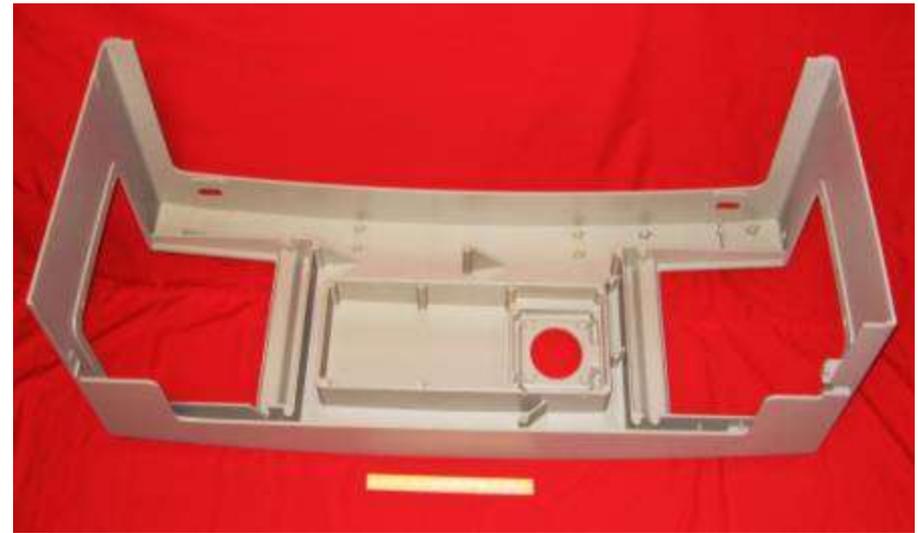
Section III. Part Design Advantages (cont.)

- ❑ Side actions are less costly



Section III. Part Design Advantages (cont.)

- ❑ Easier to mold complex features on both sides of parts



- All part features molded-in – nothing glued or post-machined

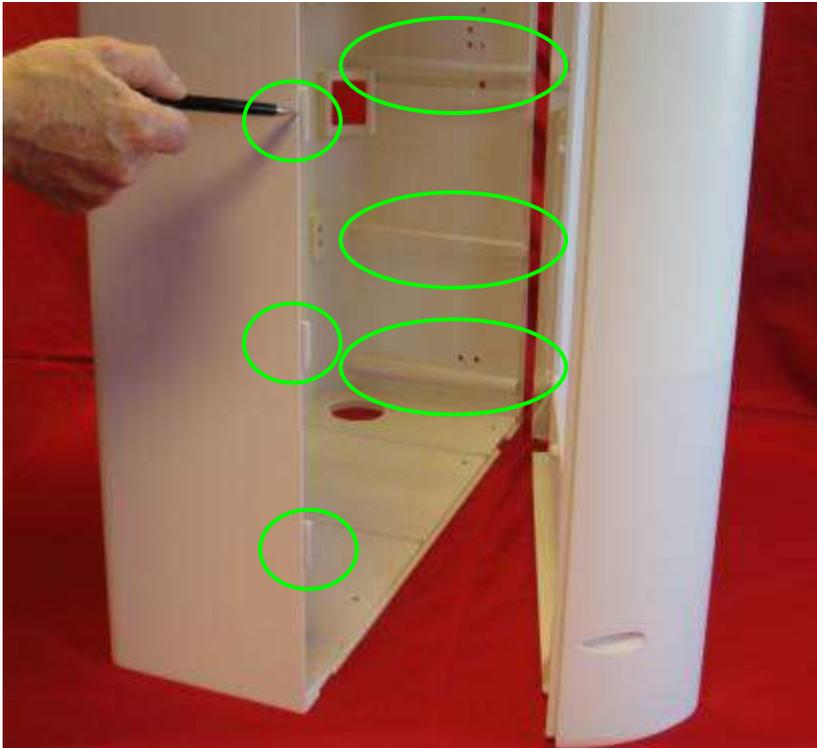
Section III. Part Design Advantages (cont.)

- ❑ Easier to combine multiple parts into one part



- ❑ Can obtain thermal and acoustic insulation, especially with thicker wall parts

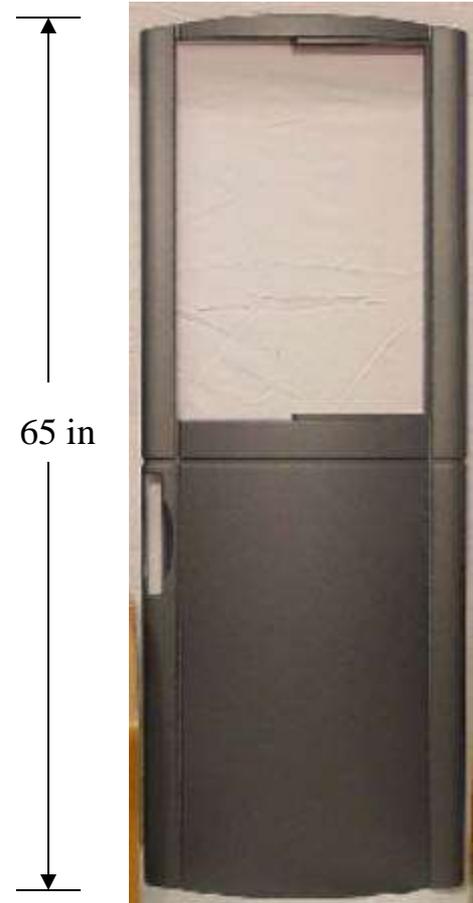
Section III. Part Design Advantages (cont.)



- ❑ Easier to mold in locating features to make assemblies fit better consistently

Section III. Part Design Advantages (cont.)

- ❑ Resin flows easier to fill larger, more complex parts
- ❑ Molded parts are more rigid



Section III. Part Design Advantages (cont.)

- ❑ Tight tolerances are achievable
 - +/-0.001 in/in is typical
- ❑ UL flame rated solid and foamed resins available
- ❑ Thermoset resins resist chemicals



Section III. Part Design Advantages (cont.)

❑ Insert molding and encapsulation easier to do

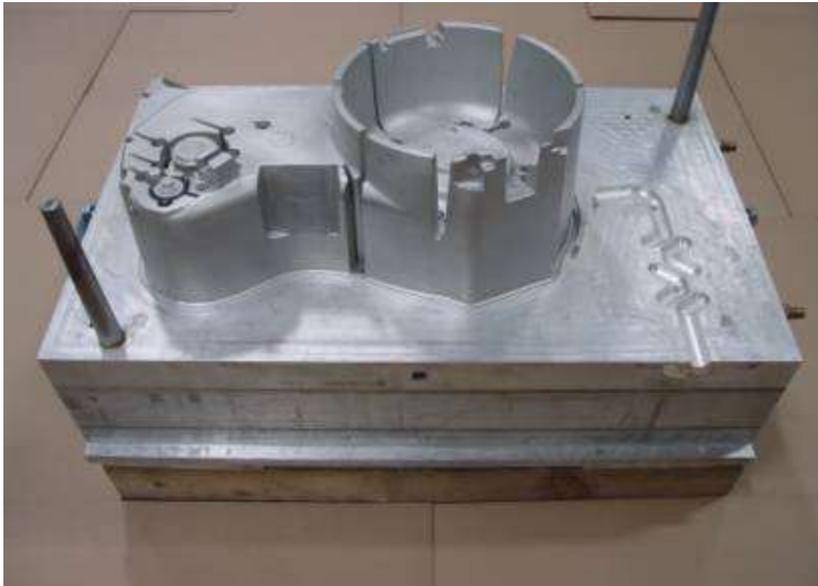


- Hermetically seals parts
- Eliminates assembly labor
- Makes safe, tamper-proof products



Section IV. Low Cost, High Value Molds

- ❑ Faster machining aluminum molds
- ❑ Simpler ejector systems



Section IV. Low Cost, High Value Molds

(cont.)

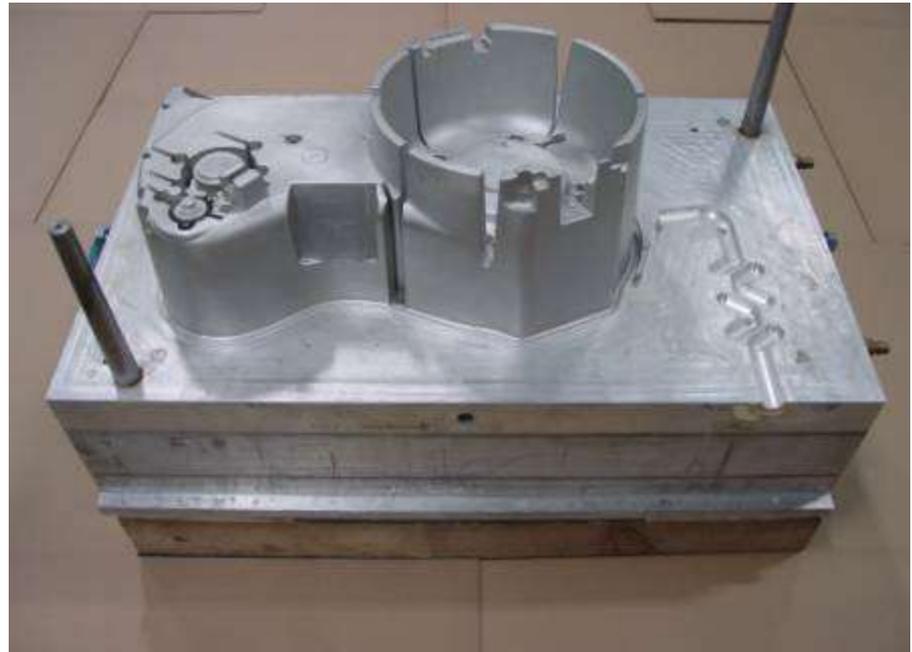


- ❑ Low cost side actions



Section IV. Low Cost, High Value Molds (cont.)

- ❑ Less concern about coring and hot spots
- ❑ Less critical water cooling systems



Section IV. Low Cost, High Value Molds

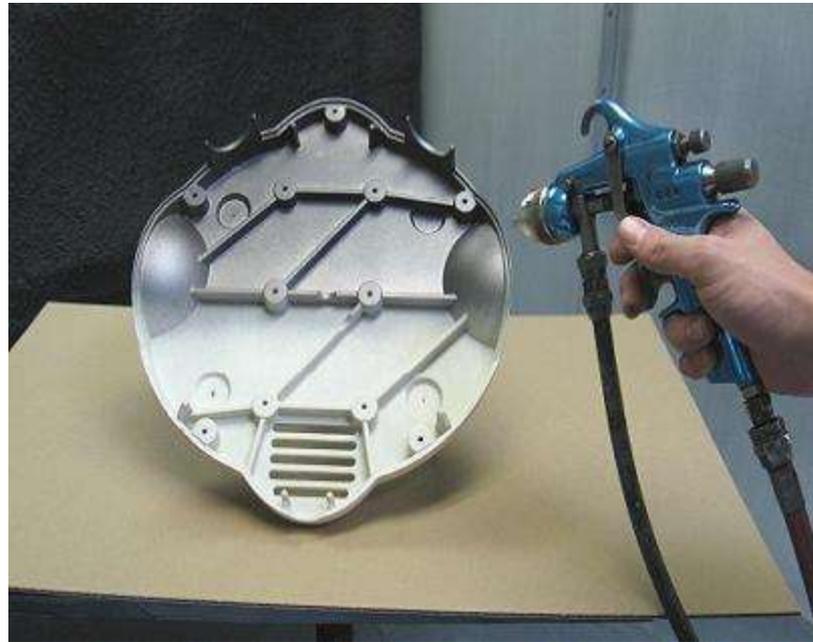
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- ❑ Multi-cavity family molds can be used



Section V. Post Molding Options

□ EMI/RFI Shielding



Section V. Post Molding Options (cont.)

Painting

Decorating



Section V. Post Molding Options (cont.)

- ❑ Install threaded inserts



Section V. Post Molding Options (cont.)

- Complete removal of gate and vent vestige
- Machining



Section VI. In Summary

□ Advantages of RIM

- Economical for low quantity injection molding because set-up costs are low
- Molds cost less for more features
- Shorter tooling lead times
- More design freedom due to low molding pressures and temperatures



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Thank You!



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