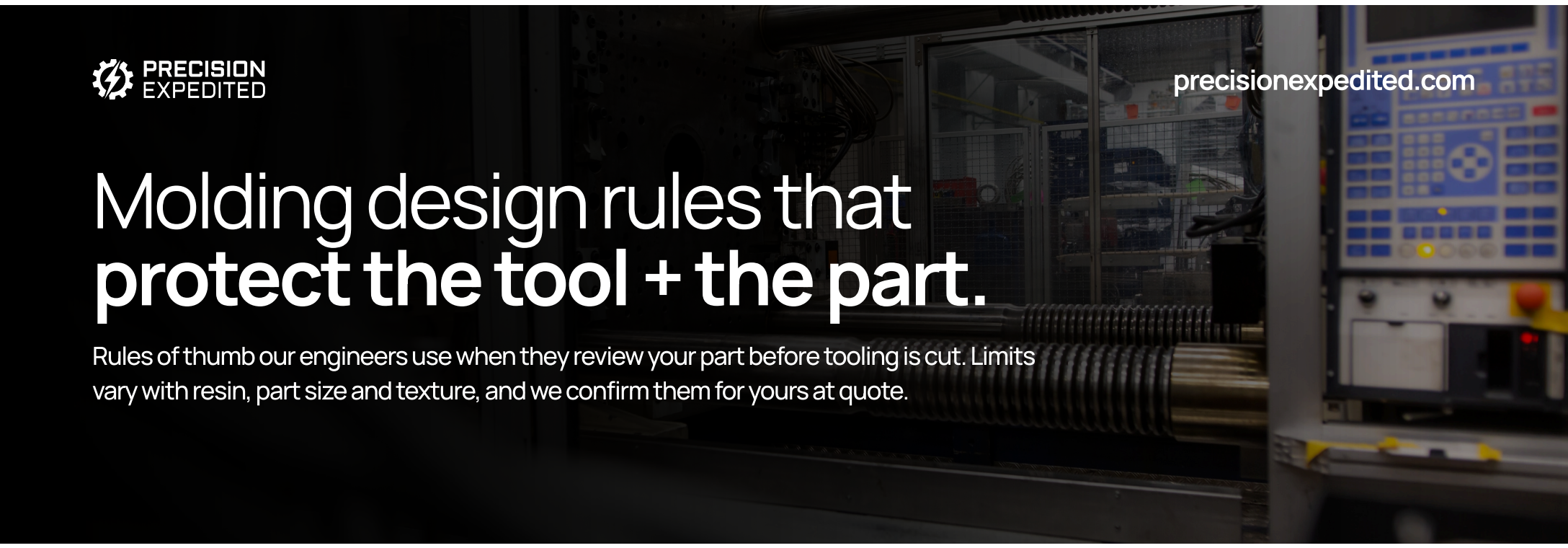
INJECTION MOLDING DESIGN GUIDE



PRECISION EXPEDITED

precisionexpedited.com

Molding design rules that **protect the tool + the part.**

Rules of thumb our engineers use when they review your part before tooling is cut. Limits vary with resin, part size and texture, and we confirm them for yours at quote.

Design Breaks a Rule?

Send it anyway. Undercuts, inserts and thick sections aren't disqualifiers. Our engineers review every part before tooling starts, flag what drives tool cost, and tell you what a side action or lifter would add.

Walls + Draft

Where most molding defects start.

- **Wall thickness** · 0.040" to 0.150" for most resins
- **Uniform walls** · Keep variation within about 25%
- **Transitions** · Taper thick to thin over 3x the change
- **Draft** · 1° to 2° minimum on pulled faces
- **Textured faces** · Add about 1° per 0.001" of texture
- **Inside corners** · Radius at least 0.5x the wall
- **Outside corners** · Inside radius plus the wall

Ribs, Bosses + Tooling

- **Ribs:** 50% to 60% of the adjoining wall
- **Rib height:** 3x wall thickness or less
- **Bosses:** Wall about 60% of nominal, cored out
- **Undercuts:** Side actions or lifters add tool cost
- **Gates + ejectors:** Keep them off cosmetic faces
- **Knit lines:** Plan where flow fronts meet

Why It Matters

Thick sections cool slower than thin ones, which is where sink and warp come from. Missing draft drags parts on ejection and wears the tool. Every side action adds steel, cycle time and a chance for flash. The cheapest fix is the one made before the tool is cut.

Quality + Compliance

ISO 9001:2015 · AS9100D Compliant · ITAR Registered

NIST 800-171 Compliant · Aluminum + steel tooling

Inspection before shipment · ISO 13485 Compliant

Built Fast. Built Right.

Send us your files.

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