

# True Position Plastics

## Mold Classifications

These classifications were originally defined by the **SPI (Society of the Plastics Industry)**; now part of the **PLASTICS Industry Association** and are widely used in North America and globally.



### Mold Classifications Overview

| Class | Typical Use                      | Lifespan               | Notes                                           |
|-------|----------------------------------|------------------------|-------------------------------------------------|
| 101   | High-volume production           | 1,000,000+ cycles      | Premium mold construction                       |
| 102   | Medium to high-volume production | Up to 1,000,000 cycles | High-quality, but slightly less robust than 101 |
| 103   | Medium-volume production         | Up to 500,000 cycles   | General-purpose molds                           |
| 104   | Low-volume production            | Up to 100,000 cycles   | Limited tool steel and cooling                  |
| 105   | Prototype/short runs             | Under 500 cycles       | Often aluminum or soft tool steel               |

### Class 101 Tooling In Detail

#### Applications:

- Automotive production
- Consumer electronics
- Medical devices (when high repeatability is required)
- Any high-cavitation mold running 24/7

#### Typical Construction Requirements:

- **Tool steel:** Must use high-grade tool steel (e.g., H13, S7, or hardened stainless like 420SS)
- **Hardness:** Cores and cavities hardened to at least 48–50 HRC
- **Cooling:** Full cooling line system with corrosion-resistant channels
- **Ejector systems:** Built for long-term, high-cycle performance
- **Parting lines:** Precision ground and wear-resistant inserts
- **Guiding:** Precision leader pins, bushings, and interlocks

## Expected Maintenance:

- Regular preventive maintenance is essential
  - Hot runner systems typically included and maintained accordingly
  - Insert replacement or re-polishing may be required periodically over its lifespan
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## Cycle Life vs. Maintenance

Even though Class 101 molds are designed for **1 million+ cycles**, **actual mold life** can exceed **2–3 million cycles** with proper:

- Maintenance and cleaning
  - Mold steel selection
  - Part design (abrasiveness, ejection force, flash issues)
  - Processing parameters (pressure, speed, temperature)
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## Summary

**Class 101 molds** are top tier, built for longevity, high-speed cycles, and minimal downtime. They represent the highest upfront cost but offer the **lowest cost-per-part over time** when production volumes are high.

## Contact Us to learn more:

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