



**HENRY PLASTIC MOLDING INC.**

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## **Mold Classifications – 10/1/2013**

When requesting a quote for a **production** plastic injection mold, Henry Plastic Molding recommends that you not just specify a mold class of 101 – 103, but you also specify the mold features that you want included on your mold. Then, base your choice of mold and mold makers on mold description and specifications, not just mold classification. You should specify and base your decision on mold description as much, if not more than just mold classification.

Don't depend solely on the mold classification designation in order to make a decision on the mold makers you will use. Some of the mold features that a customer might be lead to expect, are actually optional in the mold maker's mind. For instance: detailed mold design, parting line locks, runner shut-off's, cooling locations and plating are all recommended, optional or done if possible. Plus, there are different versions of parting line locks and some are much better than others.

There are some features you may want to include, that, depending on the mold classification, may or may not be included, or that are only recommended, but not required. A few of them are:

1. Parting line locks
2. Sleeved or guided ejection
3. Beryllium Copper alloys
4. Cooling in slides
5. Cooling in cores
6. Cavity & cores cut direct into the mold base plates vs. cavities & cores cut into inserts in the mold base plates
7. Slide locks
8. Runner shut-offs
9. Actual Mold-Tech texture vs. equivalent texture

Basically, whenever some mold maker simply says they are building a Class 10X mold, they are often only talking about the hardness of the materials. Read the information below and you will see that there is a great deal of room for interpretation of what is and isn't included on a certain classification of mold. You, with the mold maker's help, need to decide what is important to you and your desired part quality, not just the mold maker.

At Henry Plastic we spell out our mold specs in detail on our quotes UP FRONT. We don't just say Class 10whatever and then leave it open to our interpretation of what ought to be built into a mold.

There are only 3 classes of molds that should be considered for injection molding **production** purposes: Class 101 – 103 (104 & 105 are considered early production, launch or prototype molds). These classes are standardized by the Society of Plastic Industries and are described as follows:

### **SPI CLASS 101 MOLD - for projects of 1,000,000 cycles or more**

These molds are intended for very high production and long production runs. they are good for abrasive materials and/or parts requiring very close tolerances. This type of mold is the most expensive mold and is made using only the highest grade and the hardest materials. The cavities and cores are often made twice in order to achieve the tightest tolerances.

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- 1.) Detailed mold design required. HPMI recommends a complete engineering review with the customer prior to mold build. Customer approval of the mold design is not only recommended by us, we insist on it.
- 2.) Mold base to be a minimum hardness of 280 Brinell Hardness Number (BHN).
- 3.) The Cavity and Core molding surfaces must be hardened to a minimum 50 R/C range.  
All other details, such as slides, heel blocks, wedge blocks, etc. should also be of hardened tool steels.
- 4.) Ejection should be guided.
- 5.) Slides must have wear plates
- 6.) Cooling provisions to be in cavities, cores and slide cores, if possible.
- 7.) Plating of all water lines and channels is recommended.
- 8.) Parting line locks are required. HPMI installs parting line locks as a standard.

**SPI CLASS 102 MOLD** - for projects of between 250,000 cycles and 500,000 cycles.

Medium to high production mold, which are fairly good for abrasive resins like glass filled and for parts requiring close tolerances, but not as good as Class 101.  
These molds fall into the medium mold price ranges, but they are usually a good value for the cost.

- 1.) A detailed mold design is recommended. HPMI recommends a complete engineering review with the customer prior to mold build. Customer approval of the mold design is not only recommended by us, we insist on it.
- 2.) Mold base to be a minimum hardness of 280 BHN, but softer steels are often suggested to keep the mold prices down.
- 3.) Molding surfaces should be hardened to at least 48-52 R/C. All other functional details should be made of similar hardness.
- 4.) Cooling provisions to be in cavities, cores and slide cores, if possible.
- 5.) Ejection is not specified, but should be guided. HPMI uses guided ejection whenever possible.
- 6.) Parting line locks are recommended to help insure tight tolerances. HPMI installs parting line locks as a standard. Other mold makers do not.

**SPI CLASS 103 MOLD** - for projects of under 250,000 cycles.

This is a medium production mold and is common due to the moderate price range and cycle capacity that fits many product lives.

- 1.) Detailed mold design recommended. HPMI recommends a complete engineering review with the customer prior to mold build. Customer approval of the mold design is not only recommended by us, we insist on it.
- 2.) Mold base must be minimum hardness of 165 BHN, but softer steels are often suggested to keep the mold prices down.
- 3.) Cavity and cores must be 28-33 R/C or higher.
- 4.) HPMI installs parting line locks as a standard. Other mold makers do not.
- 5.) All other extras are optional.

Note: All specified cycles above are approximate.

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