

GUIDE FOR MANUFACTURERS

MOLD INFORMATION

CLASSIFICATIONS OF INJECTION MOLDS UP TO 400 TONS

Here we will attempt to detail the materials and the processes to be used in producing the various classifications of molds.

GENERAL SPECIFICATIONS

1. Customer to approve mold design prior to start of construction.
2. All molds to have adequate channels for temperature control.
3. Wherever feasible, all details should be marked with steel type and rockwell hardness.
4. Customer name, part number, and mold number should be stamped on all molds.
5. All molds and large components should have adequate provision for handling, i.e., eyebolt holes.

CLASS 101 MOLD

1. Detailed mold design required.
2. Mold base to be minimum hardness of 280 BHN.
3. Molding surfaces (cavities and cores) must be hardened to a minimum of 48 R/C range. All other details, such as slides, heel blocks, gibs, wedge blocks, etc. should also be of hardened tool steels.
4. Ejection should be guided.
5. Slides must have wear plates.
6. Temperature control provisions to be in cavities, cores and slides wherever possible.
7. Over the life of a mold, corrosion in the cooling channels decreases cooling efficiency thus degrading part quality and increasing cycle time. It is therefore recommended that plates or inserts containing cooling channels be of a corrosive resistant material or treated to prevent corrosion.
8. Parting line locks are required on all molds.

CLASS 102 MOLD

1. Detailed mold design required.
2. Mold base to be minimum hardness of 280 BHN.
3. Molding surfaces should be hardened to a 48 R/C range. All other functional details should be made and heat treated.
4. Temperature control provisions to be directly in the cavities, cores, and slides wherever possible.
5. Parting line locks are recommended for all molds.
6. The following items may or may not be required depending on the ultimate production quantities anticipated. It is recommended that those items desired to be made a firm requirement for quoting purposes:
 - a. Guided Ejection
 - b. Slide Wear Plates
 - c. Corrosive Resistant Temperature Control Channels
 - d. Plated Cavities

CLASS 103 MOLD

1. Detailed mold design recommended.
2. Mold base must be minimum hardness of 165 BHN.
3. Cavity and cores must be 280 BHN or higher.
4. All other extras are optional.

CLASS 104 MOLD

1. Mold design recommended.
2. Mold base can be of mild steel or aluminum.
3. Cavities can be of aluminum, mild steel or any other agreed upon metal.
4. All other extras are optional.

CLASS 105 MOLD

May be constructed from cast material or epoxy or any other material offering sufficient strength to produce minimum prototype pieces.

CLASS I UNIT INSERT

1. Detailed mold design required.
2. Insert retainer to be uniform hardness of at least 280 BHN.
3. All molding and/or functional details are to be made of tool steel hardened to at least 48 R/C.
4. Slides must have wear plates.
5. Temperature control provisions to be in cavities, cores and slides wherever possible.
6. Over the life of a mold, corrosion in the cooling channels decreases cooling efficiency thus degrading part quality and increasing cycle time. It is therefore recommended that plates or inserts containing cooling channels be of a corrosive resistant material or treated to prevent corrosion.
7. Parting line locks are required to be on all molds.
8. Insert retainers must have leader pins and bushings or some similar guidance system.

CLASS II UNIT INSERT

1. Detailed mold design recommended.
2. Insert retainer to be uniform hardness of at least 165 BHN.
3. Cavities and cores must be 280 BHN or higher.
4. Water channels to be included.
5. All other extras are optional.

CLASS III UNIT INSERT

Can be constructed from aluminum, cast metal, cast epoxy or any material with sufficient strength to produce minimum prototype parts.

(Important: Refer to the general specifications to complete the details of this section, except for prototype molds.)