MOLDMAKERS
DIVISION

CUSTOMS AND PRACTICES OF THE MOLDMAKING INDUSTRY

CLASSIFICATIONS OF MOLDS FOR THERMOPLASTIC AND THERMOSET MATERIALS

A GUIDE FOR THE PURCHASER OR MANUFACTURER OF MOLDS

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INTRODUCTION

This manual has been prepared by the Moldmakers Division of The Society of the Plastics Industry, Inc, as part of it's continuing effort to improve service to mold buyers. It is intended to assist buyers seeking guidance in mold procurement. The "Customs and Practices" contains important points that a prospective mold buyer should consider when planning to purchase a mold.

While the information presented here is offered in good faith as reliable, SPI and it's members disclaim all liability for loss or damage arising from reliance on this manual by any person.

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CUSTOMS AND PRACTICES

As in every industry, various commercial and administrative practices have developed over the years which play an important role in the conduct of day-to-day business. These arrangements, generally expressed in the proposal, acknowledgement, and contract forms of the individual companies, have been viewed as constituting "customs of the trade." This section is designed to identify and explain these customs.

These are various areas that can result in difficulty unless through understanding and communication is established between the mold buyer and the moldmaker. It is important to understand that all specific items in a purchase order must be negotiated and agreed upon by the contracting parties and not through use of any terms or provisions contained in this manual. Since this manual addresses common practices, the mold buyer should not assume that the moldmaker is obligated to or normally adheres to all provisions in this manual.

INQUIRIES AND QUOTATIONS

The first communication between the mold buyer and the moldmaker is during the inquiry stage.

Since the mold must be built to fit all pertinent requirements of the buyer's facilities and operating procedures, it is vitally important that the buyer furnish the selected moldmaker with all necessary specifications. Otherwise the ensuing quotation from the moldmaker cannot be realistic and usually requires renegotiation. It is also imperative to give each mold builder the identical information from which to quote.

Note: The trade customs outlined herein represent the historic and customary practices prevailing in the plastics moldmaking industry. Contract forms of individual moldmakers may vary in some details.

Inquiry information should be transmitted by the following methods:

(1) INITIAL CONTACT

Initial contact should be made in person wherever possible. This enables both parties to understand the details of the mold to be produced as well as the standards required in the relationship between the two companies. Basic quotation information should be determined at this time, in writing, with sufficient information to give a realistic quotation.

When direct contact is not possible, an explanatory letter, adequately covering all details, is acceptable. However, it is customary to use a standard form with which all mold builders are familiar.

(2) MOLD DATA SHEETS

These sheets list the mold specifications required to make a quotation. They should be easy to fill out and contain the pertinent information that will tend to increase quote accuracy and uniformity. The Moldmakers Division of the SPI has developed an easy to use **MOLD DATA SHEET** that contains pertinent information. (See Sample Form in back of this manual.)

Physical details of the mold should be established by the equipment in which the mold is to be run. This establishes the basic design and specification criteria. The internal and functional details must be determined by the complete inquiry information as previously discussed.

No part of the inquiry information should ever be assumed. Complete communication between the mold buyer and moldmaker is the best assurance of an accurate and realistic quotation. The quotation from the moldmaker, when developed from adequate inquiry information, will give the mold buyer a sound basis upon which he can establish his ultimate manufacturing costs.

Difficult piece part configurations can lend themselves to complex mold designs, increasing costs and potential mold failure. Examples include thin steel sections, undercuts, etc. These areas should be clearly stated on the inquiry form.

A quotation based on insufficient and inaccurate information may result in misleading the mold builder or buyer.

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(3) ACCEPTANCE OF ORDER

There is often a time interval between receipt of the quotation and the award of contract. It is customary for the mold buyer and moldmaker to review the quotation at this time and make it current in regard to price, delivery date, terms, and other pertinent points.

Revision in product design will cause a change in the mold and may affect both price and delivery. A shortened delivery time demand could be another possible reason for renegotiation of the order by the moldmaker.

When any details affecting price and/or delivery are agreed upon, it is important in the interest of future accord that the agreement be confirmed in writing by both of the parties involved.

Arrangement for delivery of the mold should be fully understood at the time of acceptance of the order. If testing the mold prior to its delivery is a requirement, then the details of such testing and the accompanying costs should be agreed upon at the time of acceptance of the order.

It is advisable that a contract having all pertinent information such as price, delivery, cancellation charges, and progress payment schedules be signed by both parties. This type of agreement would eliminate most misunderstandings during and after the construction of the mold. In the event a mold is purchased without a formal sales contract, parties should resolve all pertinent details, e.g. price, delivery, cancellation charges and progress payments, at time of acceptance of the order.

(4) DELAYS AND CANCELLATIONS

Factors that cause delay in mold construction will affect cost and delivery time. "Holds" ordered during construction are often quite costly, as the moldmaker is suddenly faced with the unanticipated problem of finding other work for his crew. Duplication of effort is caused when machine set-ups must be torn down to accommodate substitute work, and re-orientation is required after lengthy holds.

It is customary for parties to agree upon the allocation of liabilities regarding "stop and start" costs at the time of the stop order. It is customary for the parties to agree upon liquidated damages in the event of cancellation before completion. While cancellation charges vary, a typical cancellation charge includes recovery of all costs plus a percentage of the contract price.

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(5) MOLD DESIGN AND ENGINEERING

There is a growing trend in the moldmaking industry to have the moldmaker design as well as build the mold. In this case, there is definite need for a complete understanding as to whom is responsible for each of the mold specifications. The buyer supplies the moldmaker with the specifications for the press or presses in which he intends to run the mold, the material to be molded, the number of cavities, and the shrinkage required.

When a part drawing is incomplete, inadequate, or the part cannot be molded, any changes to the part drawing are to be thoroughly discussed between the parties and may involve additional compensation to the moldmaker.

Product shrinkage and cycle time are affected by the operating of the mold. They are affectedby the molder's presses, auxiliary equipment, the material: part geometry and the molding techniques. Since the moldmaker does not control all these factors, shrinkage and cycle time are the responsibility of the molder.

Other design characteristics such as runner and gate details (hot runner, three plate, valve gate, etc.) should be furnished by the mold buyer before the mold can be designed and built. These details would be included in an adequate inquiry.

The material from which the mold is to be made should be specified in the mold data sheet, or otherwise agreed upon. If specified solely by the mold buyer, it remains the buyer's responsibility. This is usually dictated by his production requirements. Once agreed upon, it becomes the responsibility of the moldmaker to procure and use the specified material.

Part drawings for molded parts should specify restrictions affecting mold design, such as cored holes, maximum draft allowance, gate type and location, and acceptable ejector mark areas. Problem areas such as molded undercuts, inserted sections required, molded-in inserts, and side actions should be specified. The **SPI MOLD FINISH GUIDE** is recommended for this purpose. All of these items affect mold design and cost. Early involvement will help eliminate costly details. It is the responsibility of the moldmaker to hold all dimensions within agreed tolerances.

The mold buyer customarily reviews and approves basic mold design. Proceeding without design approval may result in trouble for both parties. The molder could receive an unsatisfactory mold from an otherwise competent mold source, and the moldmaker nay have unintentionally created a dissatisfied customer. It is customary to obtain written approval of final mold drawings.

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(6) PROGRESS REPORTS

An important aid in the communication between the mold buyer and the moldmaker is the **PROGRESS REPORT**. (See sample at the back of this manual.) It serves to keep the mold buyer informed on the status of the production of the mold in relation to the expected progress. Any delays or changes initiated by the mold buyer will thus be confirmed, and the mold buyer will be kept informed of any alterations in the moldmaker's production schedule. The type of progress report and its frequency should be a matter of agreement between the mold buyer and the moldmaker. To assure that the progress reports have maximum usefulness, the mold buyer should specify to whom the report should be sent.

(7) CHANGES TO MOLD AND REWORK

Changes in the construction of the mold are usually the result of a current revision in the end product. The difficultly caused by a change is usually determined by the current status of mold construction. If it is early enough, it could mean just a change in the mold drawings. If the change occurs well along in the production schedule, it could result in considerable cost and delay, even the scrapping of work to date and starting over. When a change is ordered, its effect on the current status of the mold should immediately be determined. Ultimate additional cost and delay i delivery should be agreed upon at this point, and confirmed in writing.

(8) REWORK AFTER DELIVERY

Customarily, the original moldmaker will be responsible for out of plant rework only if he has been contacted in advance and has agreed to the costs in writing. If any source should perform any work on the mold without the consent of the original moldmaker, the mold will be considered as being delivered and accepted.

(9) ACCELERATED DELIVERIES

Requesting an improvement in a delivery schedule usually involves costs beyond the actual overtime worked. The cost will be less for each day or week saved if the accelerated delivery is contracted for when placing the mold order, rather than after a substantial portion of the original delivery time has elapsed. Costs for the improved delivery should be agreed upon by the mold buyer and moldmaker prior to acceleration of the production schedule.

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(10) HOBS, PATTERNS, TRACINGS AND SPECIALS

HOBS OR MANDRELLS-- These are steel masters used in the pressure forming of steel cavities or beryllium copper pressure castings. They are a tooling aid manufactured specifically for a given mold and are not reusable by the hobber for other purposes. Unless otherwise agreed to they are the property of the mold builder. It must be understood that the condition of these hobs might vary. They are quite susceptible to cracking or deflecting during the hobbing process and when returned may or may not be reusable for future cavities.

PATTERNS -- These are usually wood or plastic. Casts from them are used in the duplicating process of building molds. When patterns are supplied by the buyer, they remain buyer's property and are either returned on mold completion or retained by the moldmaker for future maintenance or revisions. When patterns are produced by the mold builder, they are considered expendable tooling and unless otherwise agreed to remain the mold builder's property.

ELECTRONIC DATA,DRAWINGS OR TRACINGS -- When created by the moldmaker or his representative they are the property of the mold builder. Should the mold buyer request a copy of the data or drawings or tracings it is the responsibility of the moldmaker to furnish reproducible copies if agreed to in advance.

SPECIALS -- Electric Discharge Machine Electrodes, Tapes for N.C., Mylars, special form cutter, templates and other manufacturing aids are not the mold buyer's property. The are considered to be an aid in servicing the mold and can be converted and reused for other purposes by the moldmaker.

(11) DELIVERY AND ACCEPTANCE

While delivery and acceptance are closely tied together, they are certainly not synonymous. The mold being in the hands of a commercial or contract hauler constitutes a delivery. A problem arises when too great a time lag occurs between delivery and acceptance. Early involvement by all parties concerned with the development of the product can minimize potentially costly defects and delivery delays. The mold maker expects the mold buyer to inspect the delivered mold upon receipt and to determine its acceptability. Few moldmakers are financially able to permit the withholding of approval for weeks and months until the mold buyer's inspectors see fit to examine the mold in question. Many mold buyers will not give acceptance to a mold until it has been sampled. However, if production schedules on the presses that the mold was made to fit are such that the mold cannot be sampled in time to meet the terms of sale, then the mold buyer should make other arrangements to sample the mold to meet terms of sale and pay the moldmaker the balance due.

Note: The trade customs outlined herein represent the historic and customary practices prevailing in the plastics moldmaking industry. Contract forms of individual moldmakers may vary in some details.

(12) PAYMENT TERMS

The mold builder you choose will have a great deal of money invested in your mold order before it is completed. The smallest of mold builders may have as many as five or six molds under construction simultaneously. It is customary in the mold industry to require down payments with an order and during the building of the mold. Progress payments of one type or another are also a good way to handle payment of your mold.

(13) MOLD TOLERANCES AND WALLSTOCK

An accepted tolerance on a mold is normally 50% of the part of tolerance. This gives the mold builder and the molder equal tolerance to compensate for their variations in construction and molding.

When buying a mold in which all wall stock is mechanically established, the wall stock tolerance should be given in a percentage of desired thickness. In this case a minimum of plus or minus 5% of the wall stock should be used, as a tolerance.

Models and duplicating require several sequential operations to produce cavity and core shapes. More liberal tolerances are required when duplicating aids are used in mold construction. A minimum of plus or minus 10% tolerance on wall stock for duplicated mold should be used.

SUMMARY +

This publication points to customary practice in the moldmaking industry. Using this manual will facilitate proper communications. Early involvement will build positive relationships and establish customer confidence.

CLASSIFICATIONS OF INJECTION MOLDS

General Notes

The following classifications are guidelines to be used in obtaining quotations and placing order for uniform types of molds. It is our desire through these classifications to help eliminate confusion in the mold quote system and increase customer satisfaction.

It is strongly recommended that mold drawings be obtained before construction is started on any injection mold. Even though parts may seem simple enough not to warrant a mold design, a drawing showing sizes and steel types will pay for itself in the event of mold damage.

As the applications of plastics become more sophisticated, so must mold designs. When designing a mold for a difficult part there are resources available to the moldmaker and molder to confirm the best mold design. For these designs it is recommended that a computer aided flow and/or cooling analysis be performed. These programs may help determine the best mold design, saving time and cost of design rework.

These classifications are for mold specifications only and in no way guarantee workmanship. It is very important that purchasers deal with vendors whose workmanship standards and reliability are well proven.

Mold life, because of variations in part design and molding conditions, cannot be guaranteed. This guide will attempt to give approximate cycles for each type of mold excluding wear caused by material abrasion, poor mold maintenance and improper technique.

Maintenance is not the responsibility of the moldmaker. Normal maintenance such as replacement of broken springs, broken ejector pins, worn rings, or the rework of nicks and scratches should be borne by the molder. Mold rework costs should be closely considered when deciding which classification of mold is required.

This document does not constitute a warranty or guarantee by the Society of the Plastics Industry, Inc., or its members for the classifications or specifications set forth herein.

GUIDE FOR PURCHASER
CLASSIFICATIONS OF INJECTION MOLDS UP TO 400 TONS

The following contains a brief synopsis of the various mold classifications and the detailed descriptions of each mold class. Again, it is our recommendation that a **MOLD DATA SHEET** (an example of which is in the back of this manual) be included with each request for quotation.

CLASS 101 MOLD

Cycles: One million or more

Description: Built for extremely high production. This is the highest priced mold and is made with only the highest quality materials.

CLASS 102 MOLD

Cycles: Not exceeding one million

Description: Medium to high production mold, good for abrasive materials and/or parts requiring cost tolerances. This is a high quality, fairly high priced mold.

CLASS 103 MOLD

*Cycles: Under 500,000

Description: Medium production mold. This is a very popular mold for low to medium production needs. Most common price range.

CLASS 104 MOLD

*Cycles: Under 100,000

Description: Low production mold. Used only for limited production preferably with non-abrasive materials. Low to moderate price range.

CLASS 105 MOLD

Cycles: Not exceeding 500

Description: Prototype only. This mold will be constructed in the least expensive manner possible to produce a very limited quantity of prototype parts.

**When buying inserts, the customer pays only for the insert. The unit mold base is owned by the molder. Because of the large variation in insert sizes, it should be kept in mid that it will be impossible to have product produced by another vendor without having to purchase a mold base.*

*CLASS I UNIT INSERT***

Cycles: Approximately 500,000

Description: Top quality materials for medium to high production requirements

*CLASS II UNIT INSERT***

Cycles: Under 100,000

Description: Similar to Class 104 Mold. Most commonly used insert. Low to medium production.

*CLASS III UNIT INSERT***

Cycles: Less than 500

Description: Similar to Class 105 Mold. Least expensive insert for very limited quantities. Insert built with the least expensive materials.

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

GUIDE FOR MANUFACTURER
MOLD INFORMATION
CLASSIFICATIONS OF INJECTION MOLDS UP TO 400 TONS

Here we will attempt to detail the materials and the processed 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.

MOLCLASS 101 D

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. Steels moving against one another should be dissimilar and have a hardness differenctial of at least 4 Rockwell "C."
5. Ejection should be guided.
6. Slides must have wear plates.
7. Temperature control provisions to be in cavities, cores and slides wherever possible.
8. 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.

9. 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 (cavities and cores) must be hardened to minimum of 48 R/C range. All other details, such as slides, heel blocks, gibs, wedge blocks, etc. 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 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.)

GUIDE FOR PURCHASER
CLASSIFICATIONS OF INJECTION MOLDS FOR
400 TONS OR MORE

CLASS 401 MOLD

*Cycles: 500,000 or more

Description: Built for extremely high production. This is the highest priced mold and is made with only the highest quality materials.

CLASS 402 MOLD

*Cycles: Not exceeding 500,000

Description: Medium to high production mold, good for abrasive materials and/or parts requiring close tolerances. This is a high quality, fairly high priced mold.

CLASS 403 MOLD

*Cycles: Under 100,000

Description: Medium production mold, this is a very popular mold for low to medium production needs. Most common price range.

CLASS 404 MOLD

*Cycles: Not exceeding 500

Description: Prototype only. This mold will be constructed in the least expensive manner possible to produce a very limited quantity of prototype parts.

**Cycles are approximate and for comparison only.*

GUIDE FOR MANUFACTURER
MOLD INFORMATION
CLASSIFICATIONS OF INJECTION MOLDS FOR 400 TONS OR MORE

Here we will attempt to detail the materials and the processes to be used in producing the various classifications of tooling for 400 tons or more.

GENERAL SPECIFICATIONS

1. Customer should approve mold design prior to start of construction.

2. All molds to have adequate provision for temperature control.

3. Wherever feasible, all details should be marked with steel type and rockwell hardness.

4. Customer name, part number, mold number and weight should be stamped on all molds.

5. All molds and large components should have adequate provision for handling, i.e., eyebolt holes.

6. Points should be painted to comply with recent OSHA standards.

7. All ejector pins should be nitrided or hardened.

8. Tie straps should be provided with molds to eliminate the possibility of damage caused by the mold accidentally opening.

9. Molds for materials that give off corrosive fumes should have molding surfaces plated or made of steel resistant to those gases.

10. In multi-cavity molds, all identical cavities should be individually identified.

CLASS 401 MOLD

1. Detailed mold design required.

2. Mold base to be uniform hardness of 280 BHN.

3. Molding surfaces must be hardened to a 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 should have wear plates.

6. Temperature control provisions to be in cavities, cores and slides whenever 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 402 MOLD

1. Detailed mold design recommended.

2. Mold base to be nominal 165 BHN.

3. Molding surfaces should be hardened to 280 - 310 BHN or 320 - 350 BHN depending on the complexity of the part and the performance expected. The higher the hardness the longer the mold life.

4. All other functional details should be made and heat treated to at least 48 R/C.

5. Parting of line locks are recommended for all molds.

6. The following may or may not be required depending on the ultimate production quantities anticipated. It is recommended that those items desired be made a firm requirement for quoting purposes:

   a. Guided Ejection
   b. Temperature Control Provisions Where Desired
   c. Plated Cavities

CLASS 403 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 optional.

CLASS 404 MOLD

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

Customer Name _____ Date _____

RFQ #_____ Quote #_____ _____

Name of Part/s 1. _____ Part No. _____ Rev. No. _____ No. Cav. _____
2. _____
3. _____
Total No. of Cavities _____

Type of Mold

Thermoplastic Injection _____ Compression _____ Transfer _____ Other _____
Thermoset Injection _____

Design by

_____ Moldmaker
_____ Customer

Type of Design

_____ Detailed Design
_____ Layout Only

Approximate Mold Size _____

Press _____
Make / Model _____

Mold Construction

_____ Standard
_____ 3 Plate
_____ Stripper
_____ Insulated Runner
_____ Reverse Ejection
Runnerless System _____
_____

Mold Base Steel

_____#1 _____#2 _____#3
_____S.S. _____Other

Inserted
Primary Core Yes_____ No_____
Primary Cavity Yes_____ No_____

Material

Cavities		Cores
_____	Tool Steel	_____
_____	Beryl. Copper	_____
_____	Hobbed	_____
_____	Other	_____

Hardness

Cavities		Cores
_____	Hardened	_____50-58 RC
_____	Pre-Hard	_____28-32 RC
_____	Other	_____

Type of Gate

_____ Edge
_____ Center Sprue
_____ Sub-Gate
_____ Pin Point
_____ Hot Bushing
_____ Post Gate
_____ Other
_____

Ejection

Cavities		Cores
_____	EJ. Pins	_____
_____	EJ. Blade	_____
_____	Sleeve	_____
_____	Stripper	_____
_____	Air	_____
_____	EJ. Bars	_____
_____	Unscrewing (Auto)	_____
_____	Removable Inserts (Hand)	_____
_____	Other	_____

Special Features

_____ Guide Ejectors
_____ Spring Loaded EJ. Bar
_____ Accelerated EJ.
_____ Positive EJ. Return
_____ Cylinders on EJ. Bar
_____ Parting Line Locks
_____ Double Ejection
_____ Other _____
_____ Threaded EJ. Bar

Side Action

Cavities		Cores
_____	Mechanical Slide	_____
_____	Hydraulic Cyl.	_____
_____	Air Cyl.	_____
_____	Cam	_____
_____	EJ. Activated	_____
_____	Spring Activated	_____
_____	Angled Lifters	_____
_____	Collap. Core	_____
_____	Other _____	

Cooling / Heating

Cavities		Core
_____	Blocks	_____
_____	Mold Base	_____
_____	Other (Specify)	_____

Finish

Cavities		Cores
_____	SPI #_____	_____
_____	Plating	_____
_____	Texture	_____
_____	Other	_____

Micro Switches

Moldmaker		Molder
_____	Supplied by	_____
_____	Mounted by	_____

Engraving

_____ Yes _____ No

	Moldmaker	Molder
Heaters Supplied By	_____	_____
Heater Connectors Supplied By	_____	_____
Outside Surface Model By	_____	_____
Duplicating Casts By	_____	_____
Mold Try-Outs By	_____	_____
Mat'l. Supplied By	_____	_____
Mold Flow Analysis By	_____	_____
Cooling Analysis By	_____	_____
Controller Supplied By	_____	_____
Molded Part Inspection By	_____	_____
Cad-Cam Data Supplied By	_____	_____

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SIGNED _____

Progress Report

From:
Company _____
Contact _____
Phone # _____
Fax # _____

For:
Customer _____
Contact _____
Phone # _____
Fax # _____

P.O.# _____
P.O. Date _____
Delivery Weeks _____
Tool # _____

Part # _____
Part Name _____
Mold Description _____
_____

	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Design	Date																																			
Preliminary Layout																																				
Detailed Drawings																																				
Order Materials																																				
CAD Analysis																																				
CNC Programming																																				
Mold Base																																				
Pockets																																				
Waterlines																																				
Ejection																																				
Slides																																				
Cavities/Cores																																				
Rough																																				
Finish																																				
Ejection																																				
Waterlines																																				
Heat Treat																																				
Polish/Texture																																				

Comments: _____
_____
_____

☒ Planned Start
☒ Actual Start
⊞ Completion

Date of Report _____
Signature _____

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Distribution: Use of this 3 part form is recommended as follows: 1) White and yellow - sent with request to quote. Pink - maintained in active file. 2) White original - returned with quotation. Yellow - retained in Moldmaker's active file.