WEST MARSHLAND TOOL DESIGN
Standards & Specifications

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WMTD NDA Form (rev 03/12/2010)

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Mission Statement:
West Marshland Tool Design's mission is to provide our valued customers with the highest quality, innovated engineering support; in the most timely and economical manner possible.

WEST MARSHLAND TOOL DESIGN
Non-Disclosure Agreement

This is an agreement between >person (company)< and Shane Lien (West Marshland Tool Design).

Background

West Marshland Tool Design and/or >company< desire to disclose confidential information. To enable West Marshland Tool Design to do so, West Marshland Tool Design has agreed to disclose to >company< certain information which West Marshland Tool Design regards as confidential. West Marshland Tool Design and >company< agree as follows:

Terms

1) "Confidential Information" means information that West Marshland Tool Design regards as confidential and may include, without limitation, business procedures, customer identities, technical material, marketing concepts, product ideas and manufacturing plans and procedures.

2) >company< agrees to hold in confidence all Confidential Information and not disclose such information to any other party without the written consent of West Marshland Tool Design and to refrain from making use of the information for its own benefit. Failure to comply with this provision will result in a payment of damages caused by any unauthorized disclosure.

3) >company< agrees upon request to immediately return to West Marshland Tool Design all documents or other materials delivered to it by West Marshland Tool Design or West Marshland Tool Design's representatives during the term of this Agreement.

4) No information disclosed to >company> shall be deemed to transfer any rights to >company< unless such information and its transfer is in writing and is signed by an officer of West Marshland Tool Design.

5) This Agreement shall not be deemed a commitment of any kind by West Marshland Tool Design to enter into any further agreement with >company<.

6) This Agreement will be binding upon the successors, if any, of the parties and shall not be assignable.

7) The term of this agreement is for two (2) years from the date of signature. Any confidential or proprietary information provided to >company< is to remain confidential and proprietary for this period of time, unless explicit written consent is provided to >company< by West Marshland Tool Design.

8) Each individual executing this Agreement on behalf of a corporation personally warrants that he or she is authorized to execute this Agreement on behalf of such corporation and that this Agreement is binding on that corporation and on the individual executing this Agreement.

Person's Name
Company
Date:

Shane Lien
West Marshland Tool Design
Date:

WEST MARSHLAND TOOL DESIGN

Request For Quote / Mold Design Specifications

Please complete this form with as much information as you can at this time.
Email completed form back to: wmtd@grantsburgtelcom.net

Customer Information

Company:
Contact:
Phone:
Email:
PO Number:

General Information

Material:
Shrink:
Process Temp:
Mold Temp:
Cavitation:
Annual Volume:
Class of Mold:
Mold Number:
End user:
Part Name:
Part Number
Rev Level:

Mold Base Information

Brand:
Style:
Material:
Plating:
Mounting:
Orientation: Horizontal

Tool Steel Information

	Material	Hardness	Finish
Cavity Block:			
Core Block:			
A-side Insert:			
B-side Insert:			
Core Pins:			
Lifter:			
Slide:			
Driver / Lock:			
Gib:			
Wear Plate:			

Press Information

Locating Ring Diameter:
"R" Dimension:
"O" Dimension:
Knock Pattern:
Distance Between Tie Bars:
Platen size:
Minimum Stack Height:
Maximum Stack Height:
Maximum Mold Open:
Ejector Stroke:
Brand:
Tonnage:
Shot Size:

Mold Features

- [ ] Extra SHCS in EJ Plates
- [ ] Extra EJ Plate Stop Buttons
- [ ] Parting Line Locks
- [ ] Guided Ejection
- [ ] Spring Return Ejection
- [ ] Runner Shut Off
- [ ] Date Code Inserts
- [ ] Flush Mount KO Extensions
- [ ] Ejector Stroke limiters
- [ ] A-side Insulator Sheet
- [ ] B-side Insulator Sheet
- [ ] Bronze Leader Pin Bushings
- [ ] Greaseless Pins & Bushings
- [ ] Cavity Pressure Sensors
- [ ] Venting Inserts
- [ ] Cooling Inserts
- [ ] Plate Timing

Temperature Control

- [ ] Series Fittings
- [X] Counterbore Fitting Below Mold Surfaces
- [ ] Lines in Cavity Block
- [ ] Lines in Core Block
- [ ] Lines in Slide
- [ ] Lines in A-support Plate
- [ ] Lines in A-plate
- [ ] Lines in B-plate
- [ ] Lines in B-support Plate
- [ ] Baffles
- [ ] Cascades
- [ ] Cartridge Heaters
- [ ] Thermocouples

Gate / Runner Information

Gate Type:
Gate size:
Runner Type
Runner Size:
Melt Deliver:

Venting Information

Style:
Primary Depth:
Land:
Vent Track Size:
Vent Track Depth:
To Atmosphere

Ejection

- [ ] Ejector Pins
- [ ] Ejector Blades
- [ ] Ejector Sleeves
- [ ] Stripper
- [ ] A-side

Mold Action

- [ ] Mechanical Slides
- [ ] Hydraulic Slides
- [ ] Pneumatic Slides
- [ ] Lifters
- [ ] Pick Outs

Component Information

Steel Vendor:
Main Component Vendor:
Slide Retainers:
Slide Assemblies:
Insulator Sheets:
Core Pins:
Lifter Assemblies:

Notes:

WMTD Quote Number:
Date Quoted:

WEST MARSHLAND TOOL DESIGN

Data Transfer Guidelines:
Part Prints, Databases and Communication

GENERAL

1) Draft should be clearly defined and drawn on part print.
2) Moldability is assumed.
3) Approved shrink factors for the selected material shall be supplied by the customer and documented in writing.
4) Both a 3D part database (partfile) and a part print should be provided if possible.
   - The part database will be three dimensional and will accurately define all part geometry and dimensional information.
   - The part print should be in either electronic or hard copy format and will specify tolerances, finishes, critical areas and other pertinent information.
5) In the event of a dimensional discrepancy between the 3D data and the part print the 3D data will supersede the part print unless otherwise agreed to in writing.
6) Any modifications required to the customer provided partfile, or revised partfiles received from the customer after the project starts, may result in additional cost and may require additional lead time.
7) Any modifications WMTD makes to the customer provided partfile must be approved by the customer in writing.
8) Customer shall supply molding machine platen layout and ejector KO pattern in writing.
9) Preliminary mold design shall be approved by the customer prior to start of mold construction.
10) Final mold designs will be updated with all mold changes prior to mold approval.

3D PART DATABASE

1) Solid models partfiles are required. WMTD may not be able to work with wireframes and surface only files.
2) Optimum solid file format should be determined between the WMTD and the customer.
3) WMTD should receive customer's native file format if possible.
4) If the native file format is not an alternative then a STEP (.STP) or Parasolid (.X_T) file can be provided.

PART PRINT

1) Part prints should indicate any critical dimensions.
2) Part prints should indicate all tolerances.
3) All radii and sharp corners should be called out.
4) Surface finish and/or texture should be stated.
5) Current part name, number and revision are stated.
6) Any additional information required to describe the part should be included.

COMMUNICATIONS

If questions from WMTD are asked by voice or email we must receive an answer within 48 hours or the delivery date will be moved out to adjust for lost time.

Your cooperation is greatly appreciated, as deviations from these guidelines may adversely affect both cost and delivery.

WEST MARSHLAND TOOL DESIGN
General Mold Design Standards

The following are the standards West Marshland Tool Design (WMTD) use to design molds. The following standards have been put in place to insure quality of the product and to following industry guidelines. All customers' **specific written** mold design standards will take precedence over any WMTD standard unless noted otherwise.

These standards have been developed to meet or exceed customer expectations, and the demands that will be upon the tool. These guidelines will further evolve, therefore communication between WMTD and the customer is essential.

CONSIDERATIONS

1) Understand and incorporate customer requirements
2) Match the mold to the overall project requirements
3) Determine the optimal mold design
4) Standardize wherever possible

PART IDENTIFICATION

Unless otherwise specified, molds will be designed with the following whenever possible:

1) All Part Numbering and Date Code identification in mold cavities shall be according to the approved Part Drawing when available.
2) Size and location of all Part Numbering and Date Code identification in mold cavities shall be identified according to the approved Part Drawing when available.
3) All methods to establish the Part Numbering and Date Code identification in mold cavities shall be approved by the customer.
4) Any deviation of Part Numbering or Date Code identification as supplied by the approved Part Drawing must be approved by the customer.

CAVITY AND CORE

Unless otherwise specified, molds will be designed with the following whenever possible:

1) Customer is responsible for providing shrink rate for the partfile and any marking information that will be molded onto the part (part number, cavity ID, date code, logos, etc.)
2) Customer is responsible for providing requirements for: venting, runner type & size, and gate size type & location.
3) Any poor steel conditions (no draft, undercuts, vertical seal off, thin steel, etc.) must be thoroughly discussed at preliminary stage of design.
4) Cavities and cores will be inserted unless otherwise specified.
5) A & B-plate will have a minimum of 1" of steel surrounding insert blocks and 1.25" of steel under insert blocks in unsupported plates.
6) When individual cavity shutoffs are requested, they will be able to turn shutoffs in press.
7) Proper venting to all cores, cavities will be modeled.
   - WMTD standard shows secondary vent track .040" away from part detail Ø1/8" ball .015" deep.
8) All critical areas to be inserted. Critical areas shall be defined by the customer. In general, all part features that are critical to part function and part features requiring "tight" tolerance control shall be inserted. Whenever possible, inserts must be designed so that the feature dimension can be adjusted within the insert space.
9) No jack screws/bolts on parting line of cavity & core blocks or runner blocks.
10) Sufficient relief to cavities and cores at the parting line will be modeled to insure parting line seal-off.
11) No components will be stamped (cavity ID, steel type, etc.) in CAD model without direction from the customer.

TEMPERATURE CONTROL (WATER / OIL LINES)

Unless otherwise specified, molds will be designed with the following whenever possible:

1) 300 Series fittings will be shown.
2) DME SV-Series Jiffy-Matic® fittings will be used for all oil lines.
3) Fittings counter bored minimum 1/8" below mold surface.
4) Minimum counter bore diameter is Ø1.125". Will have Ø1.250" whenever possible.
5) Minimum Ø1.125" (Ø1.250" whenever possible) center to center distance between counter bores.
6) No waterlines in clamp slots.
7) In and outs preferred on the top and bottom sides of mold.
8) Waterlines are to be located to produce even cooling throughout the part in both the cavity and the core.
9) No waterlines will be added to the base plates, unless requested by the customer.
10) 1/4NPT (Ø7/16") waterlines will be used whenever possible.
10) 1/8" minimum of steel between water lines and all other features (ejector pins, SHCS, etc.) will be maintained.
11) All water baffles will be the next NPT size larger than the waterline to maintain constant water flow whenever possible.
12) All water baffles will run the full length of the water lines.
13) All water straight baffles will have a "V" groove cut into baffle, to allow proper water flow.
14) O-ring pockets will be placed in base pockets whenever possible.
15) O-ring pockets will be designed so the O-rings do not shear or become damaged during proper mold assembly.

EJECTION

Unless otherwise specified, molds will be designed with the following whenever possible:

1) Ejection layout and component sizes must be approved by the customer.
2) Ejector pins (blades & sleeves) shall be industry standards sizes.
   - All exceptions must be noted and approved by customer.
3) Land distance shall be sized to optimize mold wear and fit characteristics.
   - Typically land will be three times the pin diameter, with a maximum .375" of land.
   - Land amount may be more than .375" if part detail requires.
4) Ejector pin holes shall be .125" minimum from all core side walls whenever possible.
5) Ejector pin holes in the tool steel shall be 1/64" larger than the pin.
6) Ejector pin clearance holes in the base shall be 1/32" minimum larger than the pin.
7) Pin diameters under Ø.125" will be shoulder pin with 2" shoulders.
8) Counter bores in ejector plate will be modeled with .002" clearance above the head.
9) Pins will be modeled flush to part detail.
10) Contoured ejector pins & pins with engraving will be keyed into place to maintain alignment.
11) Preferred method of keying pins is with a flat on the pin head and a milled slot in the ejector plate.
12) Ejector plate travel will be sufficient for full part ejection and consistent, automatic mold operation.
13) If required, ejector travel limiters will be bolted to the bottom of the B-plate / support plate.
14) Knock out clearance holes will be Ø1.250"
15) Threaded holes for knock outs will meet customer's molding press requirements
16) Extended knock out adapters will be flush with back of mold.
17) If required, ejector plates shall run on guided bushings.
   - Four sets of pins & bushings whenever possible.
   - Whenever possible, guided ejection pins & bushings will be at PCS standard locations.
   - On smaller molds guided ejection pins will be modeled installed in the ejector housing / bottom clamp plate.
   - On larger molds guided ejection pins will be modeled installed in the B-plate / support plate.
18) If required, ejector plates will have return springs when mold layout and operation allow.
   - Springs will be standard sizes and not cut to length.
   - Springs will be "blue" medium duty die springs designed with roughly 25% deflection for long life.
   - Springs will have standard counter bores whenever possible.
   - Springs will be installed around return pins or separate core pins in the event brokerage occurs.

GENERAL MOLD BASE ITEMS

Unless otherwise specified, molds will be designed with the following whenever possible:

1) Zero Corners is indentified with a large chamfer and the text “zero corner” or “0 corner”.
   - No need to add features to actual base, it is for model representation only.
2) SHCS that come with a standard mold base will not be shown in model to reduce mold design assembly size.
3) Three piece ejector housings (bottom clamp plate & rails) will be modeled a one piece housing to reduce mold design assembly size.
3) Clamp slots will be industry standard (as supplied on a DME or equivalent base).
   - If base has an insulator plate, clamp slots will be modified to maintain 7/8” distance from platen.
   - No clamp slots on top or bottom of mold unless specified.
   - Clamp slots will not be modeled full length of A-side unless specified.
4) Pry bar slots on all plates including ejector plates and ejector rails.
5) Leader pin vents will be added if they do not come standard with base.
6) Safety straps will be on either the top or operator sides of mold.
   - Mold plates have a third bolt hole for strap storage.
   - DME/PCS style plastic strap shown as standard.
7) Balanced eyebolt holes:
   - 5/8-11 threaded holes on all four sides of larger mold plates.
   - 1/2-13 threaded holes on top & bottom sides of smaller mold plates
   - A half & B half of the mold will have its own balanced eyebolt hole on the top side
8) Parting line locks on all four sides of tool on SPI 101 & 102 tools. 103 & 104 optional.
   - Insert bases will have taper locks. (quantity of two in diagonal corners)
   - Smaller bases will have side locks.
   - Larger bases will have top locks.
   - Mold plates that completely surround top locks will have knock out holes.
9) Cycle counter will be on either the top or operator sides of mold.
10) Extra SHCS and stop buttons will be added to ejector plates.
11) Sprue bushing will be keyed with a SHCS to A-plate when runner detail is on the bushing.
12) No stamping will be shown on base without information being provided by the customer.
13) Insulator plates will be design in such a way that they will not be required to remove during mold disassembly.

SIDE ACTIONS (SLIDES/CAMS & LIFTERS)

Unless otherwise specified, molds will be designed with the following whenever possible:

1) Leader pins will be long enough to engage before slide angle (cam) pins.
2) All slides will be designed with wear plates. Prefer wear plate thickness of 1/4 inch.
3) Custom slide assembly wear plate material shall be Lamina.
4) Slides will be designed with positive stops and locking details.
5) Slides will be designed with Superior or Progressive brand detents.
6) Gibs will have two dowel pins for alignment.
7) Face plate on side actions to be built with off-set dowel pins to error proof the assembly.
8) Side action sleeves, core pins and face plates to be keyed to prevent rotation and mis-assembly.
   - No pins or key stock to be used.
9) Safety pins will be added to slide assembly to prevent damage, if slide component are over ejection.
10) Lifters will be designed with standard components whenever possible

ELECTRICAL SYSTEMS

Unless otherwise specified, molds will be designed with the following whenever possible:

1) All heater and thermocouple junction boxes will be designed mounted on the top of mold.
2) The junction box will be designed with removable front panel to allow wiring access without disturbing the connectors.
3) All connections shall be routed and installed into single connection plate box wherever possible.

HYDRAULIC & PNEUMATIC SYSTEMS

Unless otherwise specified, molds will be designed with the following whenever possible:

1) Hydraulic cylinders & motors shall be specified by the customer.
2) Motors shall be marked to identify “in” and “out” rotation ports except where an approved rack drive unscrewing is used.

COLD DECK, HOT RUNNER AND VALVE GATE SYSTEMS

Unless otherwise specified, molds will be designed with the following whenever possible:

1) All cold deck hot runner or valve gate hot runner molds shall be designed using systems specified by the customer.
2) The type/design of the cold deck, hot runner or valve gate system will be determined by the customer.
3) All electrical connectors in junction box shall be determined by the customer.
4) Heater and thermocouple wires shall not be exposed and shall be secured in wire channels.
5) Prefer wire channels to be in the cavity-side face of the hot runner plate assembly wherever possible.
6) All heater and thermocouple junction boxes will be designed mounted on the top of mold.
7) The hot runner manifold will have a locating ring and spherical radius sprue bushing specified by the customer.
8) All cold deck, hot runner or valve gate systems molds will be designed with an insulation plate.

Considerations when selecting the cold deck hot runner or valve gate system should be:
- Standardization with existing systems wherever possible
- Uniform plastic material heating throughout system
- Ease of maintenance and disassemble/assembly
- Spares parts and service availability
- Hot runner and valve gate control system compatibility and availability
- Individual part cavity filling, cavity sealing, and gate aesthetics
- Standardization and ease of wiring
- Standardization of electrical connections
- Wiring and components compatible with local power requirements.

WEST MARSHLAND TOOL DESIGN
SPI Mold Classification

SPI CLASS 101 MOLD One million cycles or more

DESCRIPTION: Built for extremely high production. This is the highest priced mold and is made with only the highest quality materials.
1) Detailed mold design required.
2) Mold base to be a minimum hardness of 280 BHN.
3) Molding surfaces (cavities and cores) must be hardened to a minimum 50 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 cores whenever possible.
7) Electroless nickel plating of all water channels is recommended. This greatly inhibits the chance of rust and makes it easy to clear sediment from plugged lines.
8) Parting line locks are required on all models.

SPI CLASS 102 MOLD Under 500,000 cycles

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.
1) Detailed mold design recommended.
2) Mold base to be a minimum hardness of 280 BHN.
3) Molding surfaces should be hardened to at least 48 R/C. All other functional details should be made and heat treated likewise.
4) Temperature control provisions to be directly in the cavities, cores, and slide cores 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 checked and made a firm requirement for quoting purposes:
a. Guided Ejection
b. Slide Wear Plates
c. Plated Temperature Control Channel
d. Plated Cavities

SPI CLASS 103 MOLD Under 250,000 cycles

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

SPI CLASS 104 MOLD Under 10,000 cycles

DESCRIPTION: Low production mold. Used for limited production preferably with nonabrasive materials. Low to moderate price range.
1) Mold design recommended.
2) Mold base can be of mold steel or aluminum.
3) Cavities can be of aluminum, mild steel or any other agreed upon metal.
4) All other extras are optional.

WEST MARSHLAND TOOL DESIGN

File Naming Convention for SoildWorks mold designs

Job Number	Rev Number	Asm/Comp ID name	Component ID No.	File Extension	Description
07125-	00-	mold		.sldasm	Year the mold was designed: 2007
07**125-**	00-	mold		.sldasm	Customer & Mold number for the year (25th mold designed in 2007 for Customer ID 1)
07125-	**00-**	mold		.sldasm	Revision Number (00,01,02, etc) (00 = the initial release of the mold design to the customer, 01= revision 1)
07125-	00-	**mold**		.sldasm	Assembly / Sub – Assembly name
07125-		cavity-	**2**	.sldprt	component ID # for mutli-cavity molds (A-side cavity block #2)
07125-		cavity-	2	**.sldprt**	SolidWorks part file extension
07125-	00-	mold		**.sldasm**	SolidWorks assembly file extension
07125-	00-	mold		**slddrw**	SolidWorks drawing file extension

Examples:

07125-0-00-mold.sldasm Main mold assembly (Top Assembly) Contains moldbase components, cav-core assembly, and all sub assemblies (First Release: 00)
07125-00-insert.sldasm Cavity and Core assembly (should contain all toolsteel components)
07125-00-base.sldasm Mold base assembly (sometimes components are in the top assembly)
07125-SHCS.sldprt Component name for a socket head cap screw (store bought components that will not be modified, will not have a rev number)
07125-0-02-mold.slddrw Main mold layout drawing (second revision) for WMTD Job Number 07125
07125-cavity-2.slddrw Component detail drawing for cavity block #2 (same as component ID codes below)

Component I.D. Codes

TOOL STEEL ITEMS

ains	A-side Insert
arnrbk	A-side Runner Block
arnrso	A-side Runner Shut-off
balpad	Balance Pad
bcore	B-side Core Block
bins	B-side Insert
brnrbk	B-side Runner Block
brnrso	B-side Runner Shut-off
cavity	A-side Cavity Block
ejbar	Ejector (stripper) Bar
gibr	Slide Gib (right side)
gibl	Slide Gib (left side)
insert	Insert (misc)
lckblk	Lock Block (wedge)
ltbar	Lift Tie Bar
lifret	Lift Retainer
lifter	Lifter
mntblk	Mounting Block
pikout	Pick-out Insert
sldbdy	Slide / Cam Body
slface	Slide / Cam Faceplate
sldins	Slide / Cam Insert
werplt	Wear Plate

CUSTOM ITEMS

bupplt	Back Up Plate
conbox	Connector Box
cvrplt	Cover Plate
ejtstp	Ejector Travel Stop
inssht	Insulator Sheet (sides)
shmblk	Shim Block
stdblk	Stand-off Block
wtjplt	Water Jump Plate

MOLD BASE ITEMS

ainplt	Top Insulator Plate
aplate	A – Plate
bcmplt	Bottom Clamp Plate
binplt	Bottom Insulator Plate
bplate	B – Plate
bushng	Leader Pin Bushing
cldplt	Cold Deck Plate
ejhsng	Ejector Housing
ejrtplt	EJ Retainer Plate
ejsplt	Ejector (support) Plate
gebush	Guided EJ Bushing
geldpn	Guided EJ Leader Pin
ldrpin	Leader Pin
lcring	Locating Ring
manplt	Manifold Plate
pillar	Support Pillar
plstrp	Parting Line Strap
rail1	Ejector Rail (zero corner)
rail2	Ejector Rail
retpin	Ejector Return Pin
sdlock	P/L Side Lock Asm
sdlock-f	Side Lock (female)
sdlock-m	Side Lock (male)
sprbng	Sprue Bushing
stppin	Ejector Stop Pin
supplt	Support Plate
tcmplt	Top Clamp Plate
tplock	P/L Top Lock
tplock-f	Top Lock (female)
tplock-m	Top Lock (male)
xplate	X - Plate

Standard Components

baffle	Water Baffle Plug
campin	Angle / Cam Pin
corpin	Core Pin
cylctr	Cycle Counter
dowel	Dowel Pin
ejbld	B - Ejector Blade
ejpin	Ejector Pin (straight)
ejshpn	Ejector Pin (shoulder)
fitting	Water Fitting
koext	EJ KO Extension
o-ring	O-ring
plug	NPT Plug
retclp	Retainer Clip (C-clip)
sdrblt	Shoulder (stripper) Bolt
SHCS	Socket Head Cap Screw
sldret	Slide Retainer
spring	Die Spring
tubdwl	Tube Dowel

WEST MARSHLAND TOOL DESIGN
Design Review Checklist

Customer: .	***WMTD Number:*** .
Customer Job / Mold Number: .	***Date:*** .
Part Name: .	***Part Number:*** .

Y	N	NA	***Mold Base***
☐	☐	☐	Will the base size fit the press platen for which it is intended?
☐	☐	☐	If the clamp plates are wider than the mold plates, have mold plate support rails been designed?
☐	☐	☐	Is the closed mold height in range required for the press?
☐	☐	☐	Will the mold plates open and close in the correct sequence?
☐	☐	☐	Do the clamp slots meet the customers requirements? (std. clamping height = 7/8" / std. slot width = ¾" min.)
☐	☐	☐	Are tie bar and clamp areas clear of any obstructions?
☐	☐	☐	Are parting line wedge locks or straight side interlocks required?
☐	☐	☐	Are pillar supports, stop buttons, and ejector plate screws sufficient?
☐	☐	☐	Is the locating ring of the proper style and diameter?
☐	☐	☐	Does the sprue bushing have the correct radius and orifice size?
☐	☐	☐	Are eyebolt holes the correct size and in the proper position?
☐	☐	☐	Is there a safety tie strap shown between the mold halves?
☐	☐	☐	Are sufficient pry bar slots present on all plate splits requiring them? (parting line, ejector plates, etc…)

			Gate & Runner Area
☐	☐	☐	Is the sprue bushing adequately held in place?
☐	☐	☐	Is the sprue bushing adequately keyed, if required?
☐	☐	☐	Does the runner have adequate cold wells, vents, & ejector pins?
☐	☐	☐	Is the runner size and type correct?
☐	☐	☐	Is the gate size, type, and location correct?
☐	☐	☐	Is a hardened runner insert required?
☐	☐	☐	Are runner shut-offs required?
☐	☐	☐	Are sucker pins required?

			Cooling / Temperature Control
☐	☐	☐	Is the water configuration adequate? (placement, proximity to part)
☐	☐	☐	Does the water line connector size meet the customers requirements?
☐	☐	☐	Are water line circuits numbered and stamped "IN" and "OUT"?
☐	☐	☐	Are o-rings drawn correctly in every view they are shown?
☐	☐	☐	Are water lines clear of tie bars, clamps, other connectors, and platen?

			Ejection
☐	☐	☐	Is the knockout pattern correct for specified press?
☐	☐	☐	Is the quantity, size, and location of the ejector pins sufficient?
☐	☐	☐	Are all engraved or contoured pins keyed?
☐	☐	☐	Will ejector stroke eject part, gate, runner, and sprue puller?
☐	☐	☐	Are ejector stroke limiters required?
☐	☐	☐	Is a spring loaded ejector system required?
☐	☐	☐	Do any core side ejector components shut-off on 'A' half? If so, return pins must be spring loaded.
☐	☐	☐	Do lifters clear all core geometry when at full stroke?

Y	N	NA	Cams /Slides
☐	☐	☐	Do leader pins engage prior to cam pins? (1/2" minimum)
☐	☐	☐	Is cam travel sufficient to clear part detail with clearance?
☐	☐	☐	Does the cam have hardened gibs drawn?
☐	☐	☐	If required, are lamina wear plates drawn?
☐	☐	☐	Is cam retaining device per customer's specifications?
☐	☐	☐	If required, is an early return system drawn?
☐	☐	☐	If required, are safety pins drawn?
☐	☐	☐	Can all cams be assembled and installed into their pockets?
☐	☐	☐	Is the cam pin clear of anything that might interfere with it?
☐	☐	☐	Is the cam pin held in place properly with steel?
☐	☐	☐	Is the hydraulic cam sequencing correct?
☐	☐	☐	If required, are the proper limit switches drawn?

			General
☐	☐	☐	Will the part remain on the ejector side?
☐	☐	☐	Is the mold sufficiently vented to atmosphere?
☐	☐	☐	Is the mold shrinkage correct?
			----------in/in
☐	☐	☐	Is the part drawn to the proper part print revision level?
☐	☐	☐	Are spare inserts required?
☐	☐	☐	Are there adequate bolts designed in the cavity blocks?

			Notes/Information/Title Block
☐	☐	☐	Is the correct mold identification (stamping) specified?
☐	☐	☐	Is the cavity and/or core engraving specified correctly?
☐	☐	☐	Is the correct cavity and core finish specified?
☐	☐	☐	Does the steel and heat treat selection meet specifications?
☐	☐	☐	Is the bill of materials complete and correct?
☐	☐	☐	Is the title block completed to satisfaction and correct?