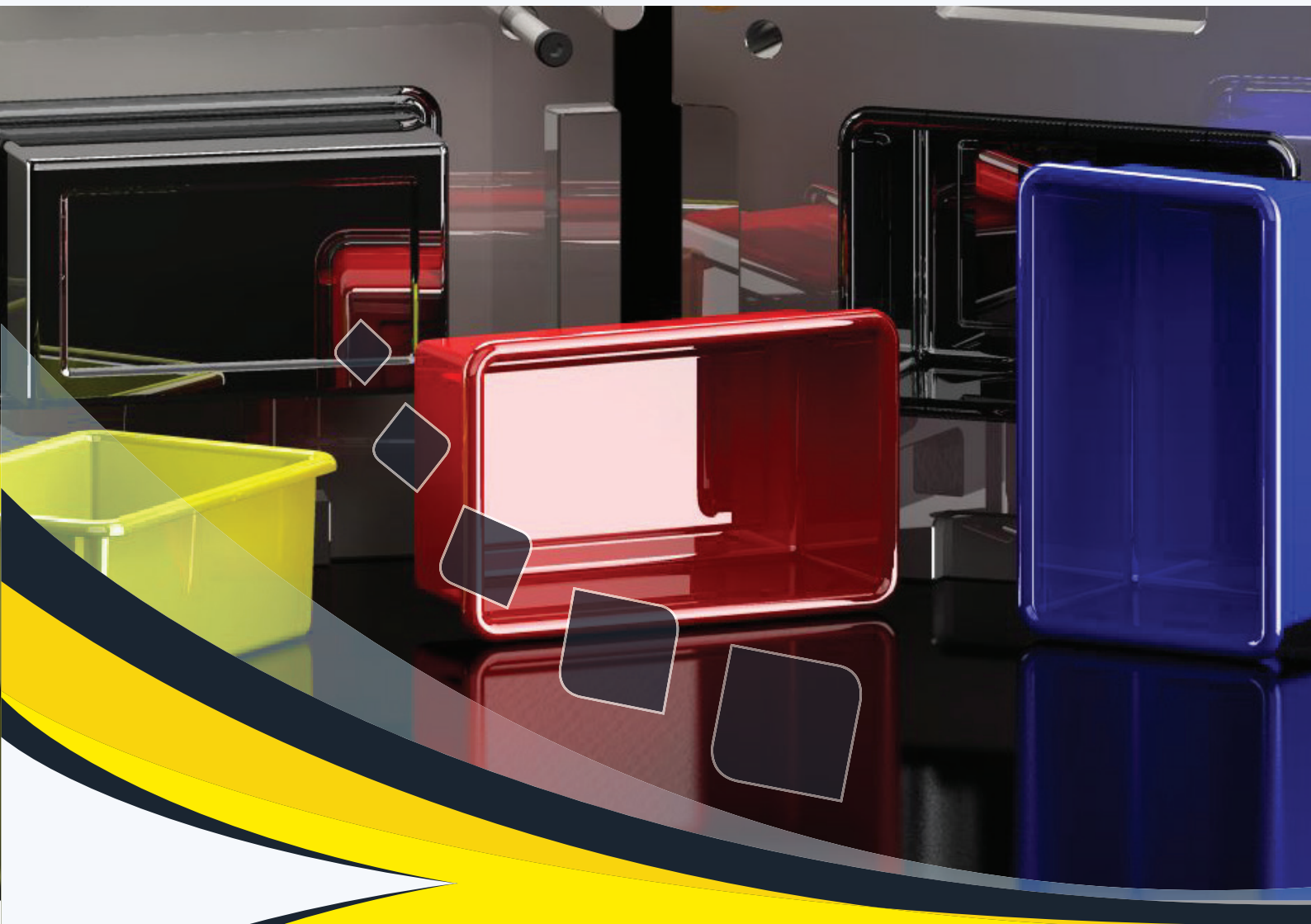




PROVIDENT PROCUREMENT

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PLASTIC INJECTION MOLD DESIGN CHECKLIST





MOLD DESIGN CHECKLIST

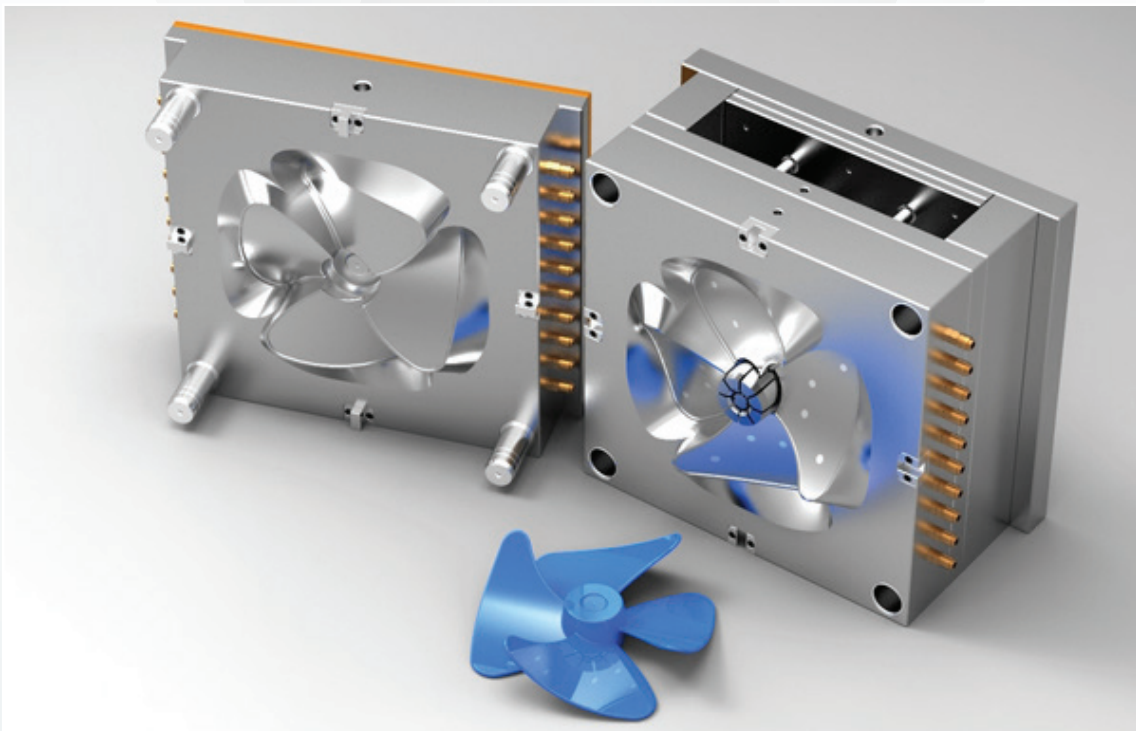
PROVIDENT PROCUREMENT

INTRODUCTION

Before you start with a new Mold you need to get as MUCH information on paper as possible. Producing a mold is costly and you simply can't afford to get things wrong, especially if you're going at it from thousands of miles away.

Understanding the importance of Mold Manufacturing we've compiled an extensive list of everything you need to check off to get your molds manufactured EXACTLY like you want them. If you specify all the aspects of the mold, the application, expectations on paper then you should by all accounts receive the perfect mold.

Before you get to the checklist it is highly advised that you start with a Project Information Questionnaire to get your ducks in a row.





MOLD DESIGN CHECKLIST

Project Information - Questionnaire

1. Is this a new part or redesign?
 NEW REDESIGN
2. Will it experience continued use or periodic?
 CONT PERIODIC
3. Are there aesthetic/brand identity requirements?
 Y N
4. Will it encounter repeated impact or force?
 Y N
5. Will it encounter any heat source?
 Y N
6. Will it encounter chemicals?
 Y N
7. Will it encounter moisture?
 Y N
8. Will it be used indoors, outdoors or both?
 IN OUT BOTH
9. Does it need to pass certifications?
(government, private, national, international etc)
 Y N
10. If yes, what certifications must it pass?
 ASTM ANSI FDA
 OSHA EPA Other
11. How many parts do you need?
 1 - 50 51-100 101-500 500+
12. Do you require an engineering resin?
 Y N
13. Do you know what resin you require?
 Y N
14. Do you have a current resin supplier?
 Y N
15. Do you have a 3D drawing
 Y N



MOLD DESIGN CHECKLIST

Project Information - Written

DESCRIBE YOUR PART & ITS FUNCTION (S)

SIZE & SHAPE

STRENGTH & RIGIDITY REQUIREMENTS

DURATION FOR WHICH A LOAD WILL BE APPLIED

MINIMUM/MAXIMUM TEMPERATURES TO WITHSTAND

MARKETS IT WILL SERVE



MOLD DESIGN CHECKLIST

Plastic Injection Mold Design Check List

1. BOM/drawing (Bill of Material) for plastic injection mold design Y N
2. Are the correct materials being shown on injection mold drawing? Y N
3. Is plastic material (plastic materials) verified with part drawing? Y N
4. Have all the components been identified on the planned view with specific and detailed numbers? Y N
5. Eye bolt holes have been installed according to engineering prints to ensure safety of handling, and are they properly threaded? Y N
6. Is BOM completed with material, component description, HRC and steel type? Y N
7. Is the Injection Mold Size (LxWxH) indicated on the plastic injection mold drawing? Y N

Design / part specification for plastic injection mold design

8. Are the tie bars for the press shown on injection mold drawings? Y N
9. Is the Rockwell hardness in C scale for each component identified in the text box on injection mold print? Y N
10. Is the shrink factor correct and verified? Y N



MOLD DESIGN CHECKLIST

Continued

11. Is there a minimum of 2-4 HRC points between movable components of the injection mold? Y N
12. Does the surface finish specified satisfy the plastic part molding requirements? Y N
13. Has the injection mold design been checked for mold function? Y N
14. Is the injection mold designed for easy assembly and disassembly? Y N

Plastic Injection Mold Components Inspection

15. Is the locating ring shown as per customer injection machine specification? Y N
16. Are the sprue "R" and orifice dimensions shown on the plastic injection mold drawing? Y N
17. Are support pillar locations shown on the injection mold drawings? Y N
18. Do the leader pins bushings have vent relief milled into the mold base? Y N
19. Is the shot counter location shown on the drawing if required? Y N
20. Have standard purchased items such as hose fittings and electrical connectors been specified on the parts list, and quality speci- Y N



MOLD DESIGN CHECKLIST

Continued

21. Does mold drawing have parting line locks such as side lock or taper locks?

 Y N

Plastic Injection Mold Mark & Guide System Inspection

22. Is there one return pin and leader pin offset and has it been marked "O" on the injection mold drawing?

 Y N

23. Are the top two leader pins long enough to protrude half an inch beyond the floating plate in the forward position?

 Y N

24. Are all the pockets and outside edges of the mold plates chamfered to eliminate the possibility of sharp corners?

 Y N

25. Is there the capability for changing inserts/cores in the press for multiple version molds?

 Y N

26. Are the leader pins long enough to pilot into the bushings before the cores enter the cavities?

 Y N

Plastic Injection Mold Design-Cooling System Inspection

27. Do the prints have 2-D water diagrams to show the flow of water?

 Y N

28. Are the water line plugs shown properly, circuits numbered, the "in and out", and levels identified?

 Y N

29. Do the water lines "in and out" avoid the tie rods, mounting bolts, and clamp areas?

 Y N



MOLD DESIGN CHECKLIST

Continued

30. Is the cooling to the inserts adequate?

 Y N

Plastic Injection Mold Design-Runner & Gate System

31. Are runner, gate location and type shown on the drawing?

 Y N

32. Does the gate type match the mold design specification sheet?

 Y N

33. Will delayed ejection be needed?

 Y N

34. Are the runners sharp corners broken by 1 mm minimum and blend the transitional points of all cross-sectional size reductions?

 Y N

35. Is there a cold slug well machined at the end of all runner turns and where the runner changes direction?

 Y N

36. Is the sprue bushing keyed to prevent turning?

 Y N

37. Are the runners polished to a minimum B-3 standard finish?

 Y N

38. Is the runner designed to drop free and clear of the mold?

 Y N

Plastic Injection Mold Design Ejection System

39. Does the ejection side of mold have a cavity support plate?

 Y N

40. Do ejector plates show spring return?

 Y N

41. Do ejector plates have guide pins and bushings?

 Y N



MOLD DESIGN CHECKLIST

Continued

42. Are KO pin locations shown on the view of the core half of the drawing? Y N
43. Do the KO holes miss the water lines, support posts, stop buttons, and core pin water fountains? Y N
45. Is the length of the ejector plate assembly 0.01-inch per/end shorter than the ejector housing? Y N
46. Have there been provisions made to return the ejector plate before the mold closes when there are ejector pins under the slides or core pins? Y N
47. Are all contoured ejector pins keyed to prevent rotation with “D” shape ejection pin head? Y N
48. Is the clearance and chamfer for the ejector pins shown on the mold drawings? Y N
49. Has part ejection been reviewed to determine any effects for distortion, hitting the other mold surface, or possibly needing shields to contain parts? Y N

Plastic Injection Mold Design-Molding Pressure/Mold Size

50. Does the mold fit within the machine minimum and maximum mold height specifications? Y N
51. Do the clamping slots line-up with bolt holes on the platen? Y N



MOLD DESIGN CHECKLIST

Continued

52. Does the machine have adequate opening stroke to clear parts and runner? Y N
53. Will the mold fit in the machine for which it is intended? Y N
54. Does the machine have an adequate KO stroke? Y N
55. Does the current design make provision for adequate venting? Y N
56. Do the Primary vents have 0.08" primary land and then exit to atmosphere through a minimum of 0.020" deep by 0.0125" wide channel? Y N
57. Does the mold drawing show the area of venting? Y N
58. Do mold drawings show the venting as a separate detailed view detail? Y N

Plastic Injection Mold Design-Side Action

59. Are core and cavity proud of the mold base parting line 0.004" minimum? Are Lifters and shifters < 15° from vertical? Y N
60. Are the slide locking angles a minimum of 2 degrees greater than angles of the pull pins in order for parts to clear? Y N

Plastic Injection Mold Design-Cavity ID & Markings

61. Are the cavities and spare cavities sequentially identified and have sub-inserts been identified for traceability purposes? Y N



MOLD DESIGN CHECKLIST

Continued

62. Are cavity numbers to be located as close to the gate as possible and shown on the print? Y N
63. Have all areas been identified for mold cleaning and has the access of these areas been considered in the design? Y N
64. Has the engraving and texturing surface finish been identified on the molding details? Y N
65. Does the size/font/location and depth of engraving conform to part drawings? Y N
66. Does the engraving have the latest part drawing revision numbers? Y N

CAVITY/CORE

67. Have the molding inserts been keyed to prevent rotation where necessary? Y N
68. Is the steel of core and cavity as per customer's' specification and suitable for molding the specified resin? Y N

Plastic Injection Mold Design-Mold Base

69. Does every plate have a pry bar slot? Y N
70. Do the Leader pins or bushings have grease grooves? Y N
71. Are the eye bolt holes size and proper location shown? Y N



MOLD DESIGN CHECKLIST

Continued

72. Has the parting line safety strap been shown on the print? Y N
73. Is the mold tag location shown and recessed below the surface of the tool to ensure the tag does not get damaged or removed during mold during assembly and disassembly? Y N
74. Are eye bolt holes at least 1 inch deep and on all four sides of the mold? Y N

Plastic Injection Mold-Hot Runner System

75. Do the mold drawings show the wiring schematics for hot runner molds? Y N
76. Do the mold drawings show the electrical box location? Y N
77. Is the hot runner manifold layout shown in drawing? Y N
78. (If Applicable) Are the insulator plates shown on top and bottom of the mold for hot runner tool? Y N
79. Are the electrical boxes insulated against heat transfer from mold base? Y N
80. Is the thermocouple connector and power connector information engraved on the plaque(s) and fixed nearby the electrical connection? Y N
81. Are the valve-gate systems air actuated? Y N



MOLD DESIGN CHECKLIST

Continued

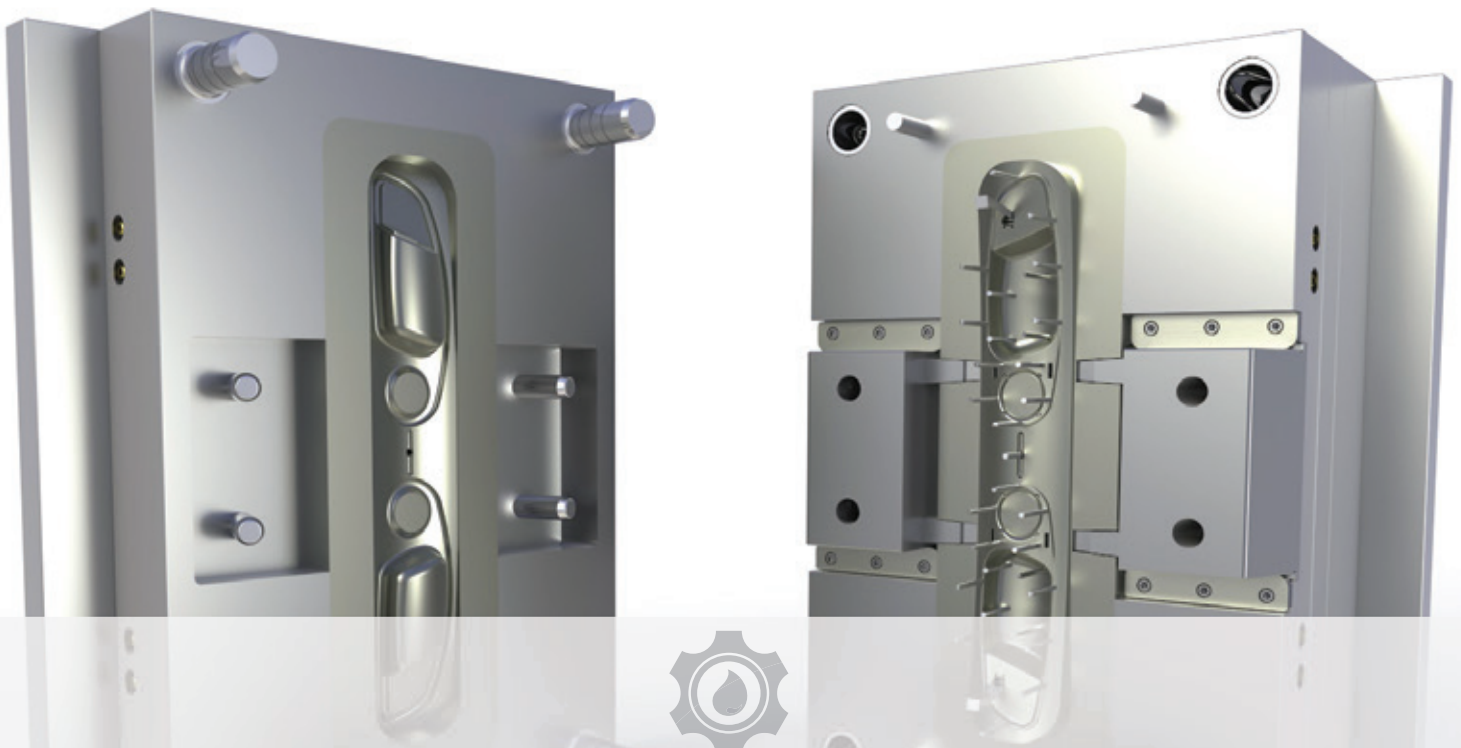
82. Are corners and edges along wire grooves chamfered or radiused?

 Y N

83. Are the electrical connectors for power and thermocouple mounted on the top of the mold. Using Std. DME type Junction box of 12-zone connector or as per customer's specification?

 Y N

84. Are the hot-runner and/or valve-gate system drawing(s) or manufacturers tags included in the documentation package?

 Y N

At Provident, we specialize in high-quality custom plastic injection molding and mold tool making. We provide custom molding for 50 to 100,000+ injection molded parts as well as a wide range of other manufacturing and finishing services to complete your project. Contact our international injection molding team for a free quote to talk about your next injection molding project.

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