

From the idea to the ready product - a check list for designing plastic parts

Application requirements

1.1. General:

What are the project budget and the time line?

Is the product lifetime specified?

What are the average order quantities per year and per batch?

1.2. Mechanical requirements:

To what stresses and for how long the product will be exposed.

1.3. Electrical requirements:

Does the application need to be electrical conductive or have EMI shielding properties?

1.4. Thermal properties:

In what conditions the product will be in use? Does the product need to be thermally conductive?

1.5. Chemical requirements:

Will the product be exposed to chemicals during its lifetime and should it be resistant to chemicals? To what chemicals exactly?

1.6. Optical requirements:

Does the application need to have optical properties e.g. to be translucent?



2. Raw material – additional properties:

2.1. Does the raw material need regulatory approval?

2.2. Does the end product need to be sterilized (Gamma, E-beam, Ethylene Oxide, Autoclave)?

2.3. Resistance to fungus and bacteria?

2.4. What are the fire safety requirements of the application?

2.5. What colors from the RAL or Pantone palettes should be used?

2.6. Should the appliance have UV-resistance?

2.7. Does the raw material need reinforcement?

3. Product design:

3.1. What are the requirements concerning surface quality and texture?

3.2. Does the product need to be painted additionally or have symbols or texts printed on it?

3.3. Metal coating?



3.4. Should the application have in-molded signs, logos or texts?

3.5. Please consider also the optimal wall thickness and material shrinkage

3.6. Should different inserts be molded in during the production process?

3.7. How many parts belong to the application and how should they be assembled?

4. Design adjustments - molding tool

4.1. Please consider that angle drafts will be added to the vertical walls. What are the maximum acceptable values for the product?

4.2. Please specify dimension tolerances for the whole product and eventually for the specific features.

4.3. What are the best places for the ejector pins?

4.4. The best places for the gate marks?

4.5. Is a visible welding line on the surface allowed?



5. Technical specification

5.1. 2D drawing(s)

5.2. 3D model (s)

5.3. Quality specification

6. Other

6.1. Does the product require certification in your country?

6.2. Does the application need Country of origin certificate?

6.3. Are there special requirements concerning recycling of the product e.g. biodegradation?

6.4. Would you like to have Rapid Prototyping samples and have them tested?

6.5. Have you already specified a raw material? What alternative materials can be used for this application?

NB! The cost of the part can vary depending on the raw material and its properties!
The cost of the tool depends on the complexity of the product geometry.