SECRET WEAPON:

8 Ways to Optimize the PROFITABILITY of *Your* Product.

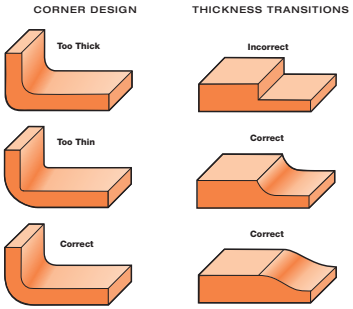
Thanks for Your Interest in Our Ideas.

It used to be that, when your company brought a product to market, you also manufactured that product in a factory you owned – based on detailed plans developed by your own design team. Our goal at Dinesol Design is to provide the depth of design/manufacturing expertise you had in the "good old days" at a price that meets today's standards for profitability. This is what we mean when we call ourselves a Secret Weapon. And it's in this spirit that we offer you these "8 ways to optimize the profitability of your product."

1. **Critique and revitalize the design of your existing products regularly.**
   Is your product as feature-rich as it could be? Could quality or reliability be better? Can you reduce production costs without compromising on quality? Your goal as a marketer is to make your product unbeatable. And since you can bet that your competitors will be critiquing like mad as they try to outmaneuver you in the marketplace, it makes good sense to stay out in front of them. And it's never too early to start. We suggest that you officially start the product redesign process the day after you celebrate your product launch. And at some point, you'll want to bring in a design team with fresh eyes, fresh ideas, and a fresh point of view.

2. **Design for the simplest, most predictable molding process possible.**
   Some of the newer plastics molding and forming technologies are impressive, and they've certainly been supported by impressive publicity campaigns. But unless your product requires some exotic new process, it pays to go for a proven, predictable process like basic injection molding. An experienced injection molder can show you work-arounds for achieving most or all of the features you're seeking, including great aesthetics. And you won't have to maneuver around unpredictable cost overruns that can affect the marketability of your product.

3. Design with the properties of plastic in mind.



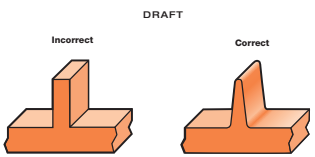
As plastic cools in the mold, it solidifies and shrinks. Thick sections solidify more slowly than thin sections, which in turn builds stresses near the boundaries where thin meets thick. These stresses often lead to warping, twisting … and even cracking. Designing with uniform wall thicknesses evens out the cooling and solidifying process and minimizes stresses. It also improves mold fill and cycle times. When uniform walls are not possible, the change between thicknesses should be as gradual as possible.

4. Design for maximum strength and minimum weight.

This is really a corollary of the preceding point. Instead of using thick wall sections, use supporting ribs or gussets to improve part stiffness. You'll save on part weight and material costs and reduce cycle times. Also avoid sharp corners, which greatly increase the concentration of stress. A good mold designer knows how to get around this problem by using a generous radius at all corners. Besides reducing stresses, rounded corners will provide streamlined flow paths for the molten plastic – so you get easier fills.

5. Design with moldability in mind.

Injection molding is faster and more trouble-free when you design parts for easy withdrawal from the mold. The secret here is to taper the part in the direction of mold opening or closing. But there are a thousand and one other secrets, too – all learned through years of hard-won experience.



The use of flow leaders and restrictors, rib thickness, how to limit sink on the surface opposite a boss, why molded-in threads are a costly mixed blessing: these problems and their solutions are not intuitively obvious to "boutique" or generalist designers. But they are second nature to those who have spent years designing for the injection molding process.

6. Take your design concept into 3 dimensions as soon as possible.

This will give you a more complete understanding of your product, force you to think about manufacturing costs early in the process … and help you produce more useful prototypes cost effectively. It will also give you the opportunity to test. Good prototype testing comes very close to duplicating molding, processing, and assembly conditions. It allows you to optimize part design and material selection before investing in expensive production tooling – and to test under the same range of conditions that the production parts will face out in the real world. To prototype test is almost always a smart business decision, especially with new designs.

7. Eliminate or reduce the need for hardware, assembly and finishing operations.

With a little forethought, you can reduce the need for screws, nuts, washers, and spacers. With a little ingenuity, you can even mold in hinges. And when assembly is required, you can design in features that prevent incorrect assembly by forcing the components to be oriented correctly. Finally, incorporating features like snap-fit joints will ease assembly without creating the need for extraneous components. The savings you gain in hardware and assembly are usually far more than the added costs of mold modification and materials. And don't forget that molded-in colors and textures can create a beautiful product look while saving you the cost of painting.

8. Choose a design partner with real depth in injection molding … and with staying power you can count on for the long haul.

1. Concept
2. Part design
3. 3-D modeling
4. Proto-typing
5. Design adjustments
6. Proto-type molds
7. Product adjustments
8. Production mold
9. Final design adjustments
10. Manufacturing
11. Product launch
12. Sales
13. Product distribution
14. Follow-up
15. Warranty

Your ideal design team will be able to demonstrate hands-on expertise across the full range of this life cycle. If you need it, they should be ready with sure-handed assistance way beyond the concept and design stages – including mold production and manufacturing. And given the state of today's economy, you should also assure yourself that they'll be here tomorrow to deliver on what they promised yesterday. Look for stability and staying power.

And Now a Brief Commercial Message.

At Dinesol Design, we know how to design for moldability, for manufacturability, and for salability. We know conversion to plastic. We understand design, materials, molds and processing. And we know how to minimize costs throughout the entire process. We do it every day. We've done it for years. And you can count on us to be with you, reliably, over the long haul – because Dinesol Design is a stable, well-capitalized company with real staying power.

You can learn more at **www.dinesoldesign.com** … or by calling Bob Hendricks at **330.544.7171.**

Dinesol
DESIGN

Targeted Expertise In Plastic Products

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