Cost-Cutting Cover-Up

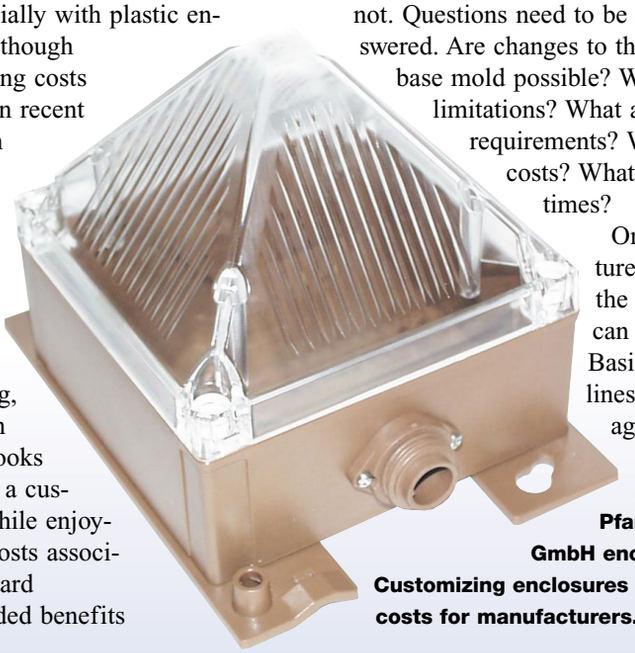
Getting customized features in an enclosure doesn't have to be expensive. With a little planning and ingenuity, standard covers can be turned into a design engineer's preferred solution.

By David Crooks

When discussing enclosure packaging, it's typical for a design engineer to have strong opinions about how to package a specific design. After all, who doesn't want a new device to have the best packaging possible? Whether that package is intended to be an ergonomic beauty that aids (and impresses) the end user or an enclosure for protecting delicate electronics in hostile environments, the OEM design engineer wants it a "certain" way.

Editor's Note: David Crooks is general manager of Fibox Inc.

Wanting something a "certain" way, though, can be expensive - especially with plastic enclosures. Even though injection-molding costs have declined in recent years, a custom plastic enclosure can be pricey in both monetary cost and time to market. However, with careful planning, an engineer can gain both the looks and features of a custom solution while enjoying the lower costs associated with standard enclosures. Added benefits such as lower capital investment, faster time to market, and much fewer risks are possible.



...just as this Pfannenberg GmbH enclosure can. Customizing enclosures can reduce costs for manufacturers.

Packaging Decisions

The engineer's starting point must be a review of standard enclosure products to find one that comes close to the estimated size needed and environmental protection required. Fortunately, there are many manufacturers offering a wide variety of types and sizes of plastic enclosures. Once the engineer finds a basic size and style to meet application needs, a discussion with the manufacturer is necessary. Some manufacturers welcome customization. Others do not. Questions need to be asked and answered. Are changes to the cover or base mold possible? What are the limitations? What are the quantity requirements? What are the costs? What are the lead times?

Once the manufacturer is selected, then the enclosure style can be finalized. Basic design guidelines should be agreed upon by the

Standard enclosures, such as this Cerlic Controls unit, can be customized...

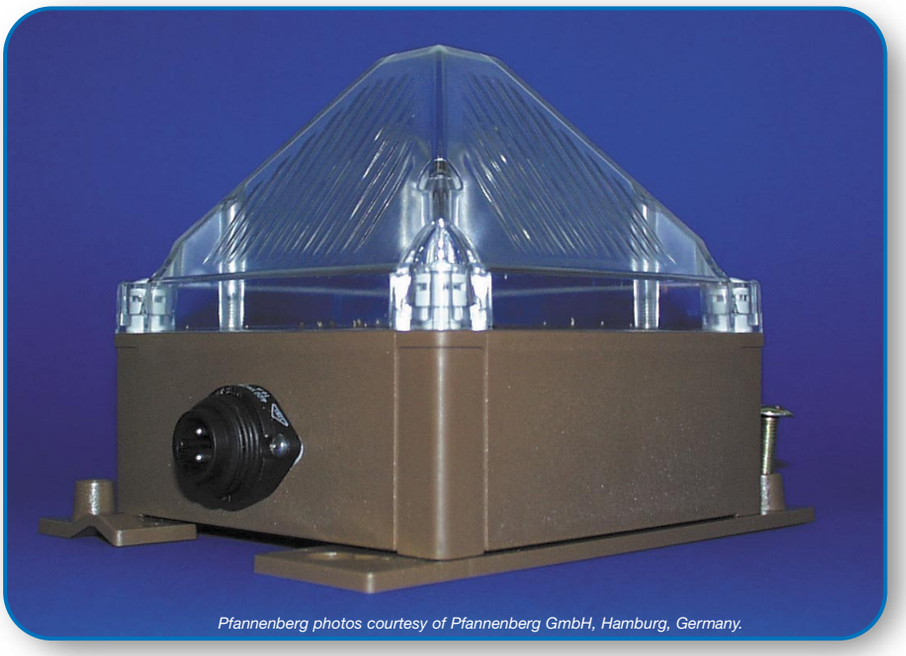
engineer and manufacturer so that the engineer can complete the design of PC cards, system and operator interfaces, and package mounting methods. During this process, the details of the standard enclosure must be kept in mind. Meanwhile, the enclosure manufacturer works on the custom molded part to make sure it meets the design goals of the engineer while still functioning (mating) with the standard enclosure part. The manufacturer and engineer must work closely together to finalize the design prior to fabricating the mold.

Mating Custom Covers

Let's review two examples of how custom covers can be mated to standard enclosure bases.

In the first example, a stylized custom cover with flowing curves was created to replace the traditional flat cover of a NEMA 4X enclosure. For this application, a base with a gasket molded into it - not the cover - was selected. This made the new cover mold much less expensive. Both pieces were molded in black polycarbonate for a dramatic effect. The customer achieved the look of a custom package for the end product with only a relatively inexpensive cover mold. The result was a dramatic transformation of an industrial NEMA enclosure into a package worthy of housing high-tech electronics. In addition to cost savings, there were significant savings in time to market. Because mold design can be tricky, one new mold - instead of two - meant quicker development and much less risk.

The second example involves a clear, pyramid-shaped custom cover mated to a modified enclosure base. The custom-molded clear polycarbonate cover functions as a lens for multicolored strobe lights mounted inside the enclosure. Since the application is outdoors, the IP rating of the enclosure (and hence the cover) must be IP67. Custom-molded symmetrical mounting bars were added to the base unit. As specified, the base and mounting bars were molded in copper-colored polycarbonate. In the end, the customer achieved a unique and functional package, greatly reduced time to market, and lowered costs by using a standard base design with a custom cover. Equally important, the manufacturer's expertise in hostile environment applications was not lost.



Pfannenberg photos courtesy of Pfannenberg GmbH, Hamburg, Germany.

This Pfannenberg enclosure can be customized for specific design needs.

Cerlic photos courtesy of Cerlic Controls AB, Solna, Sweden

So, too, can this Cerlic model.

When faced with the decision to create a custom plastic package, a design engineer should consider standard component enclosure manufacturers that are willing to create new molds that work within existing product families. The result can be an enclosure package that closely approximates a custom enclosure and meets all the design objectives but is based upon standard components and proven design techniques.

More information is available by contacting Fibox Inc., 810 Cromwell Park Dr., Ste. R, Glen Burnie, MD 21061, calling (410) 760-9696, visiting www.fiboxusa.com, writing in ***4041*** *on our reader service card, or replying online at www.pddnet.com or www.ianmag.com.*