

Translucent Magazine Development



Challenge

A major small arms manufacturer was seeking a translucent magazine to augment their current metal and polymer magazine options. They required a 30 round magazine that allowed military and law enforcement operators to be able to see the status of the magazine while being as robust as the existing aluminum magazine.

Making a translucent rifle magazine isn't necessarily difficult, translucent rifle magazines are available for sporting firearms. But making a translucent rifle magazine that can meet the reliability and durability requirement needed for military and law enforcement operations is another matter entirely. The first challenge was in developing a polymer that is impact resistant, through a wide range of environmental conditions, regardless of color additive. The second challenge was designing the feed lips so that they will withstand high temperatures, resistant to damage and won't deform or creep when kept loaded for an extended period of time.

Solution

Lancer Systems was able to apply two of their key strengths in the development of the magazine;

- Custom Polymers
- Insert Molding

The end result was a translucent magazine that meets military and law enforcements performance requirements, more robust than the existing aluminum magazines and provides added value to the user in reduced maintenance, increased reliability and improved gripping over the currently available magazines.

Features

Translucent polymer body that is impact and chemical resistant through a wide range of temperatures.

Round Count Markers at 20 and 30 rounds

Steel feed lips with a corrosion resistant coating that are permanently molded into the body.

Body has been textured to be non-reflective with visible light, IR light, NVD and lasers

Body texture, contour and rubber coated bottom are designed to provide positive gripping and improve retrieval from magazine pouches.

Body design incorporates a constant radius geometry that facilitates follower/spring travel.

Same basic design envelop as the Aluminum magazine, can be used with existing pouches and carriers.

Easy to disassemble and maintain



Extensive Testing

Credible product testing was a crucial part of the product development process. The customer led the testing effort providing credible data and the vital feedback necessary to ensure the magazine was robust enough for Military and Law Enforcement service.

Acceptance Testing Summary

- Reliability / Durability - 30,000+ rounds fired
- Low Temperature Operation (-40F)
- High Temperature Operation (+150F)
- Rough Handling - Dropped on feed lips from 5' onto concrete
- Extreme Impact - Dropped with weapon from 5' onto concrete
- Immersion Fresh and Salt Water
- M249 Firing Compatibility
- Storage - Stored loaded for 7 days
- Chemical Compatibility
 - Gasoline, Kerosene, Diesel fuel
 - Anti-freeze, Hydraulic oils, Break fluid
 - WD40, Gunzilla, Hoppes No. 9, Millitec, CLP/Break-Free
 - LSA, LAW
 - VV-L-800 oil, MIL-L-14017 oil
 - Insect repellents



Total Solutions

Our focus is on providing total solutions, components and assemblies. We have the flexibility and capability to procure, manufacture and provide quality assemblies for our customers integration.

Engineered Lightweight Materials

Lancer's materials engineers have an extensive range of products to select from, ensuring the best performing, economical solution is developed for your application. Below is a short list of commonly used materials and their typical properties. Other materials; inexpensive plastics or engineered thermoplastics can, and will, be used depending the particular application.

Collaboration

Our expertise in the full spectrum of polymer-materials technology and an intimate understanding of their unique attributes and benefits allows Lancer Systems to properly match the best possible polymer-materials solution for your specific application's requirements.

We strive to be a partner of your engineering team to help achieve weight and cost goals. Our expansive list of available materials and processes enable our engineers to select the right solution for your mission.

Warfighter Solutions

Lancer Systems is dedicated to providing the Warfighter with innovative material solutions. Our solutions support the warfighter by helping them to get in, get it done and get back safely.

Our translucent magazine development is an example of only one of the polymer solutions we've developed for soldier systems and small arms. Lancer Systems has a vast portfolio of materials that can provide lightweight, robust alternatives to aluminum, steel or other non-metallic materials that are not meeting performance requirements.

Statements and recommendations in this publication are based on our experience and knowledge of typical applications for this product and shall not constitute a guarantee or warranty of performance nor a modification or alteration of our standard product warranty which shall be applicable to such products.