

# Compact by Design

## Delrin® Used in Attractions Featuring Animatronics

Custom Solution Provided For Entertainment and Animatronics Industry

### Application Challenge

A worldwide entertainment company famous for its attractions featuring animatronics figures was looking for a way to visually enhance the display performance. One problem the animatronics industry has always dealt with is how to make the figures more life-like. The figure must react quickly yet offer a smooth, fluid motion. The most obvious application issue is related to the weight of the figure and its components - the lighter the load, the easier it becomes to provide a more life-like figure.

Initially the customer had stainless steel pneumatics because of its longevity and its ability to hold up to the elements. Looking for a means to improve its figures' performance and enhance its attractions, the company contacted CAP for a solution.



### Project Solution

First, Compact provided the customer with an aluminum cylinder to replace the standard stainless steel models. This significantly reduced the weight and also increased the performance of the figures. Pleased with the results, the customer looked to CAP for an even better solution, to further enhance the performance of its animatronics. CAP suggested the use of the polymer material, Delrin®, which is used successfully in medical applications because of its lightweight and durable physical characteristics. The utilization of special Delrin® end caps further reduced the weight of the cylinder and improved overall application requirements.

Our new product design solution was able to reduce the weight of the cylinders by more than 30%. The multiple design characteristic improvements provided our customer with fluid motion at low pressures that were desired. A combination of low friction seals and a specially formulated lubrication provided low breakaway and smooth operational movement without chatter. Our new product design and configuration drastically improved cylinder operation within their changing environmental conditions.

### Customer Benefit

After rigorous field testing our prototypes proved to withstand millions of cycles of operation without failure. After extensive consultation with the customer's design engineering group, CAP engineers went to work to formulate a complete cylinder design utilizing several special materials and custom frame geometry, solving a long time industry problem. CAP is continuing to improve and promote their custom solutions and has gained a greater reputation in the Entertainment Industry. We are now the preferred cylinder provider for this customer. Two new opportunities have emerged since our initial successful undertaking with the customer.