Plastic Bottle Machines accommodate Higher Throughout
Enidine Shock Absorber Application

By: ITT Enidine Inc. Sales Department

Situation Overview
Molding machines for the production of plastic bottles must operate at maximum capacities so that the equipment provides the shortest pay back period and the highest profitability for the companies that use them. One industry leader had an idea to radically redesign a plastic molding machine.

The new technique would be applied to the “clam shell” style, a common type of mold that uses centrifugal force to move plastic material within the mold cavity, creating the bottle shape. These clam shell machines create plastic containers at the highest production rates of the industry. This new technique could be applied to existing machines and integrated into the next generation machines.

Product Solution
In order to achieve the highest possible yield, the opening and closing of the split-mold sections (i.e., the mold cavity) must occur in milliseconds. However, this rapid movement was causing structural damage to the machine resulting from high impact velocities without a controlled deceleration. An ITT Enidine Inc. shock absorber was required to maintain the high cycle rate and prevent damage to the machine.

The size of the shock absorber was constrained due to the available space within the existing design. The available space closely matched the envelope of the ITT Enidine Inc. PRO 100 shock absorbers, but the application requirements exceeded the energy capacity and operating temperature of the standard model.

The design challenge was to decelerate the closing of the clam shell mold at the last possible moment, allowing for the fastest mold fill and release time. ITT Enidine Inc. used a combination of seal technology fluid advancements and internal structural modifications to the PRO 100 shock absorber.

Application Opportunity
Due to the success of this project, this plastic molding equipment market leader is developing its next generation of machines using shock absorber technology as an integral part of the process. Plastic molding machines (SIC 3559) are prime candidates for shock absorber products at the OEM level. Due to the high cycle requirements this application demands of shock absorbers (1,000,000 cycles per month), the after-market sales (SIC 3085 and 3089) are also substantial.