

Taking on the Toughest

1Blow reheat stretch blow molders produce challenging parts

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With the unusual spacing and size of its threads, the odd tilt of its shoulders and unique neck orientation, a photocopier toner cartridge posed unique challenges that would test any blow molders on the market. But a 1Blow machine was able to overcome the obstacles the PET cartridge presented.

The company's reheat stretch blow molding machines — also known as 1Blow — are designed to produce technically challenging parts where other equipment suppliers' machines might be overwhelmed.

The cartridge is one such case. In making it, 1Blow's machines overcame a number of major challenges — everything from the size of the cartridge's support ring to the additives mixed into the PET.

Challenging Cartridge Characteristics

A 1Blow customer began producing the 2-ounce, 11.7-inch-long, 2.8-inch-diameter cartridge on its 1XL blow molder a few years ago. The one-cavity blow molder is capable of making containers that are much heftier — as big as 12 liters — but the cartridge has some unusual dimensions with which to contend.

Take its oversized support ring. This flange near the cap at one end of the cartridge is 47mm in diameter — much wider than the 28mm PCO 1881 neck finish found on most PET soft drink bottles, which have a support ring of only 33mm. This 42-percent-larger-than-average support ring would have difficulty running through most competitive machines. The 1Blow's open architecture, simplified



Photos courtesy of 1Blow-USA

A reheat stretch blow molding machine from 1Blow

handling steps and short preform-to-bottle path make the support ring possible.

The cartridge's neck and shoulders are nothing to shrug at, either. They're unusual and demanding.

Unlike simpler blow molded parts, such as water bottles, the cartridge sports features that must be aligned with one another. The threads of the neck,

as well as the flights of the externally grooved cartridge body, have to be precisely positioned relative to the drive lugs on the bottom of the cartridge. With most blow molding systems,

preforms are oriented randomly with respect to the cavity — making alignment impossible without modifications to preforms and the addition of special notches or tabs that could ruin the final part's form.

The 1Blow unit employed by the cartridge maker, however, is equipped with optional neck-orientation technology. The rack-and-pinion system uses a



The challenging photocopier toner cartridge