



Private Company

Universal spindle for PET stretch blow molding machines

Packaging

Background

We are a world leader in manufacturing of stretch-blowmolded PET (polyethylene terephthalate) bottles and containers. In stretch blow molding of PET containers, it is customary to utilize a specific spindle design for each neck opening diameter of container being manufactured. Spindles are utilized to transport preforms through the oven of blow molding machines during PET bottle manufacturing. A high cavitation blow molder may incorporate > 200 spindles. Today, spindles are precision made for each bottle neck diameter required. Therefore, this creates high expense and lengthy change-over when running bottles with differing diameter neck openings. Therefore, it is advantageous to implement a spindle design that could be modified to accommodate a range of bottle neck openings. Bottle neck diameters may range from 18mm to 82mm. However, most commonly the range is 26mm to 38mm.

What we're looking for

We are looking for spindle designs or mechanical design concepts wherein a single spindle may be adjusted to accommodate a wider range of bottle neck diameters. Preferably, a design may be adjusted to accommodate a range of neck diameters from 26mm to 38mm. However, there would also be interest in designs that accommodate a smaller range within the range specified.

Solutions of interest include:

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Our must-have requirements are:

- Preform spindle accommodate ~2.4mm in Preform neck internal diameter range (+/- 1.2mm)
- Needs adjustable feature to accommodate ~2.2mm of neck finish height differential.
- Preform spindle must survive 2 million manufacturing cycles

Our nice-to-have's are:

- Preform spindle adjustable to accommodate range of neck finish internal diameters from 26mm to 38mm

Acceptable technology readiness levels (TRL):

Levels 1-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

Sponsored research

Benefits:

Sponsored Research

We can offer funding for projects and a wealth of expertise related to current and past state of the art and support validating & testing concepts & prototypes. Funding Range: \$50-100k with opportunity for additional funds based on Stage Gate success.

Expertise

We have extensive technical expertise to support quick assessments and validation of potential design & engineering concepts.

Facilities and Services

Our state-of-the-art pilot facility includes world class pilot manufacturing equipment and machining technology and 3D Print / SLA for prototyping and testing potential design concepts.

Tools and Technologies

Our pilot manufacturing equipment, machining technology and 3D Print/SLA are available for prototyping and testing potential design concepts.

Please contact the University of South Florida Technology Transfer office representative for submission – Karla Schramm at kschramm@usf.edu