

CASE STUDY

Plastics Industry

Component: 3 sizes of flip top caps

Application: Flip top caps closing system

Introduction

Plastic closures incorporating a flip top cap are in high demand in pharmaceutical, processing and packaging industries. The need for quality and cost are driving plastics injection moulding companies to search for improved cap closing solutions.

RNA were contracted to design and manufacture an automated cap closing system for a range of flip top caps. It was developed for flip top caps that are open after going through the injection moulding process, the caps must be closed prior to being used by manufacturers or packaging companies.

The RNA cap closing system incorporates a bowl feeder, a closing system and PLC control system. The project was for a plastic injection moulding company that manufactured a diverse wide range of bottles and closures.

Challenge

- Provide a flexible system that can suit 3 sizes of flip cap:
a. Ø24mm x 26mm tall; b. Ø28mm x 24mm tall; c. Ø28mm x 30mm tall
- Provide quick and easy changeover between batch runs
- No damage to the component parts.
- Must be capable of operating at a rate of 90 components per minute

Solution

RNA designed and developed an in-line cap closing system complete with vibratory bowl feeder and PLC control. The bowl feeder feeds and orientates components all one way via a conveyor to the closing system. The end of the conveyor is fitted with a counter and stop cylinder.

The closing system operates in 2 stages: pre-close and final close. It is envisaged that the mechanism closes 10 caps at a time - more efficient and reliable than a conventional system does. Closed caps are discharged from the end of the conveyor for collection by the customer's equipment. The closing system checks for unclosed caps, and these are discharged via a reject chute.

Changeover between components is accommodated via interchangeable tooling to fixed positions within the bowl, and with quick release fasteners on the conveyor and cap closer.

RNA Automatic Flip Top Caps Closing System

- In-Line or rotary cap closing system available
- The output speeds vary depending on the requirement and properties of cap
- Pharmaceutical-grade options available (in 304 or 316 grade stainless steel)
- Rapid changeover
- Optional provision of counting, vision inspecting further post closing

Key features & benefits

The System:-

- Provides a complete solution simple , quick changeover between components of different sizes
- A standard machine to suit most of the flip top caps
- High speed, high efficiency, high consistency and satisfactory closing effect
- No damage to the components
- Stainless grade 304
- An ideal cap closing system applicable for cap manufacturers, packaging companies, and food & drink manufacturers

All of these benefits deliver a short pay back period and impressive return on investment

