

# *pneumatic* solutions

PUSHING THE CHEESE

Filling cheese trays, weighing up to 100 pounds, and moving them along the conveyor line was the challenge Charter Engineering received from a food manufacturer. This small northwest company designs and builds food processing machinery. For this particular challenge, Charter Engineering worked with Clippard Instrument Laboratory, Inc. as their pneumatic component supplier. The application consists of pouring a heated cheese product into fiberglass trays, cooling them and then cutting for packaging.

## *index & fill*

Known as "Index and Fill", this machine continuously measures the weight of cheese emptying into trays and utilizes a pneumatic forward-push system. The system is fully automatic and uses several Clippard products, including; two **UDR-32 stainless steel cylinders** with magnetic pistons, a **RPS-S3 magnetic reed switch** and a **JFC flow control valve** to control the indexing motion.

## *long life & reliability*

According to Jay Rosen, professional engineer and owner of the Charter Engineering Group,

*"Clippard components have been used by our company on many products over the years. The stainless steel cylinders are long-life, offer washdown capability and are reliable."*



*Their costs are competitive but more importantly, the sales application staff has always been helpful and supportive on product questions for new and custom applications.*

*This system compared to competitive quotations suggesting electrical designs was far more cost effective for the customer. Also, other designs using conveyor belts were evaluated but considered too difficult to clean."*

## *check weighing system*

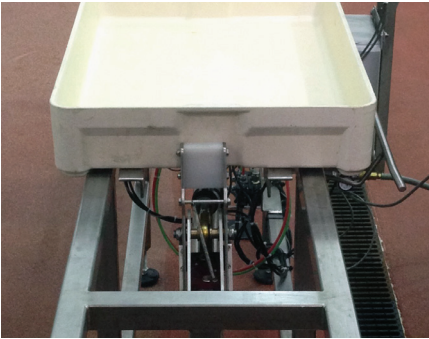
The check weighing system is a three stage process. After the first tray has reached one-half of the desired fill, stainless steel air cylinders push it forward

## *solution*

An Index & Fill machine utilizing several Clippard products, including:

- UDR-32 Stainless Steel Cylinders
- RPS-S3 Magnetic Reed Switch
- JFC Flow Control Valve





to the next stage. Here the filling process is completed, and the trays are again pushed forward by the cylinders to the unload position.

The customer's original operation called for three-to-four people to manually push the trays through the weighing operation and then to the unloading station. Today's procedure pushes several hundred trays through the process in one day with one person. According to Mr. Rosen, similar applications exist that fill other types of containers including, bags, boxes, and crates, where high fill rates are needed. Generally, the weights of the container is greater than 25 lb. with a cycle time of 15 seconds.



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[www.clippard.com/distributors](http://www.clippard.com/distributors)

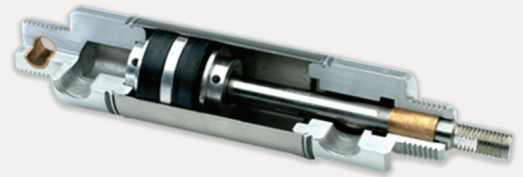
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## RELATED PRODUCTS

### STAINLESS STEEL CYLINDERS

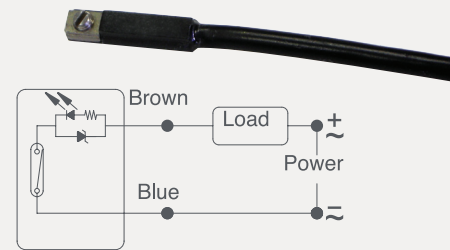
Clippard stainless steel pneumatic cylinders feature superior design and long life. Over 130 different models and 15 bore sizes are available, including a line of Delrin® head corrosion-resistant cylinders.

- Polished I.D. stainless steel tubes
- Precision rolled construction
- Machined aluminum heads
- Sintered bronze bushing
- Ground, polished and roller burnished 303 stainless rods
- Full piston breakaway
- Nitrile "U"-cup piston seals for full power, low friction and trouble-free performance
- Nitrile "U"-cup rod seals for leak-free operation



### MAGNETIC PISTONS

Clippard stainless steel pneumatic cylinders that are equipped with an internal magnet can be used with the Reed Switch and GMR Sensor. By accurately sensing the magnetic field of the piston when it passes beneath the sensor, the position of the rod piston is determined and the feedback signal is created.



### FLOW CONTROLS

These combination needle and check valve flow controls are typically used to control air flow from air cylinders, thereby controlling the speed at which the piston strokes, either while extending or retracting, depending on their location in the circuit. J-Series Flow Control Valves allow free flow in one direction. In the opposite direction, flow is metered by the needle valve.

- Inlet is a swivel port that can be rotated 360° for optimum port alignment
- Models available with flow adjustment by recessed screwdriver slot or knurled knob
- Captivated needle cannot be adjusted out of the stem
- Super fine 4,8 pitch needle thread provides the finest adjustment available

