A Pneumatic Balancer Provides Safety Without Inhibiting Transfer Cycle Time

Features and Benefits
Enclosed Track ceiling mounted bridge crane.

Relocation of vertical travel controls on "T" handles mounted on the tool frame.

Vacuum-sensed lift allowed circuitry to prevent actuation of the pneumatic balancer's vertical lift unless preset vacuum pressure is attained.

Gripper safety circuitry to prevent actuation of the release circuitry unless the part is fully supported.

Inverted "U" tooling frame to provide clearance for the picture neck and a mounting surface for the two vacuum cups.

Bellows-style vacuum cups mounted on swivel brackets to allow the cups to conform to the various funnel angles and sizes.

Industry Group: Ergonomic Assist Systems and Equipment (EASE)

The cycle consists of gripping the tube from a fixture, with the neck vertical panel (face) down, and transferring them to a worktable. The part is obviously quite fragile. The neck of the tube cannot support the maximum weight (140 lbs.) of the tube so it cannot be used as the grip point. The distance between the pick up point and set down point is 17 feet. There is a large variation in the sizes and funnel angles. This manufacturer makes several size tubes from 19" to 35" diagonal. Safety is the priority, but the manipulator's safety features should not inhibit the transfer cycle time. MATERIAL HANDLING REQUIREMENT AND WORK AREA RESTRICTIONS:

- 30-second cycle time.
- Prevent lift unless safety gripped.
- Floor space not available for a pedestal mounted manipulator.
- Prevent release unless the tube is firmly supported by the worktable.
- 17 feet of transfer required.
- 40 – 140 lbs. payload.

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