

# Two-Piece Cap Assembly System

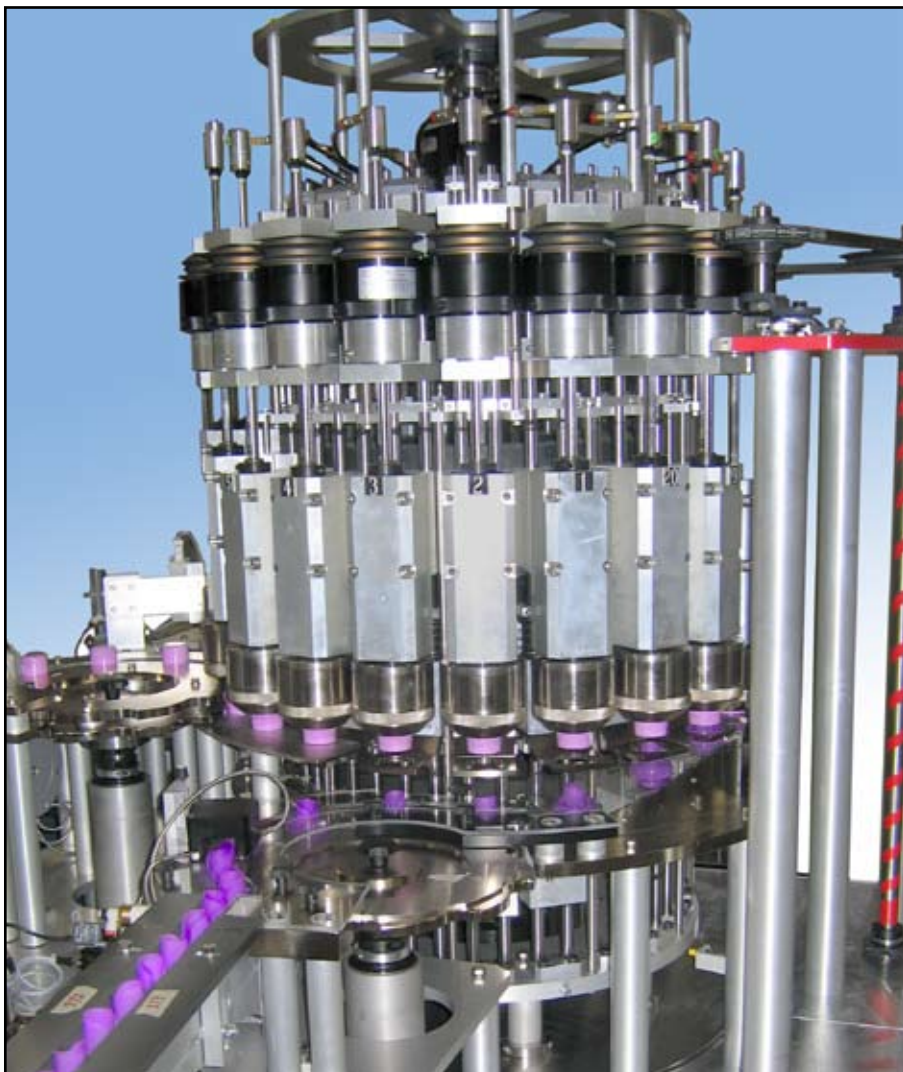


## Features . . . . .

- ◆ Assembly Rate of 300ppm
- ◆ All Stainless Steel Exterior Construction
- ◆ Cleated Elevating Belts
- ◆ FDA Approved ABS Vacuum Formed Disc for Feeders
- ◆ Teflon Hard-Coated Finished Aluminum Bowl
- ◆ Quick Change Tooling Modules for Turret
- ◆ Vertical Wedge Conveyor with Adjustable Guides and Legs
- ◆ Standard Safety Interlocks/Covers
- ◆ PLC Control (Allen-Bradley)
- ◆ Line Integration

## Part Specifications . . . .

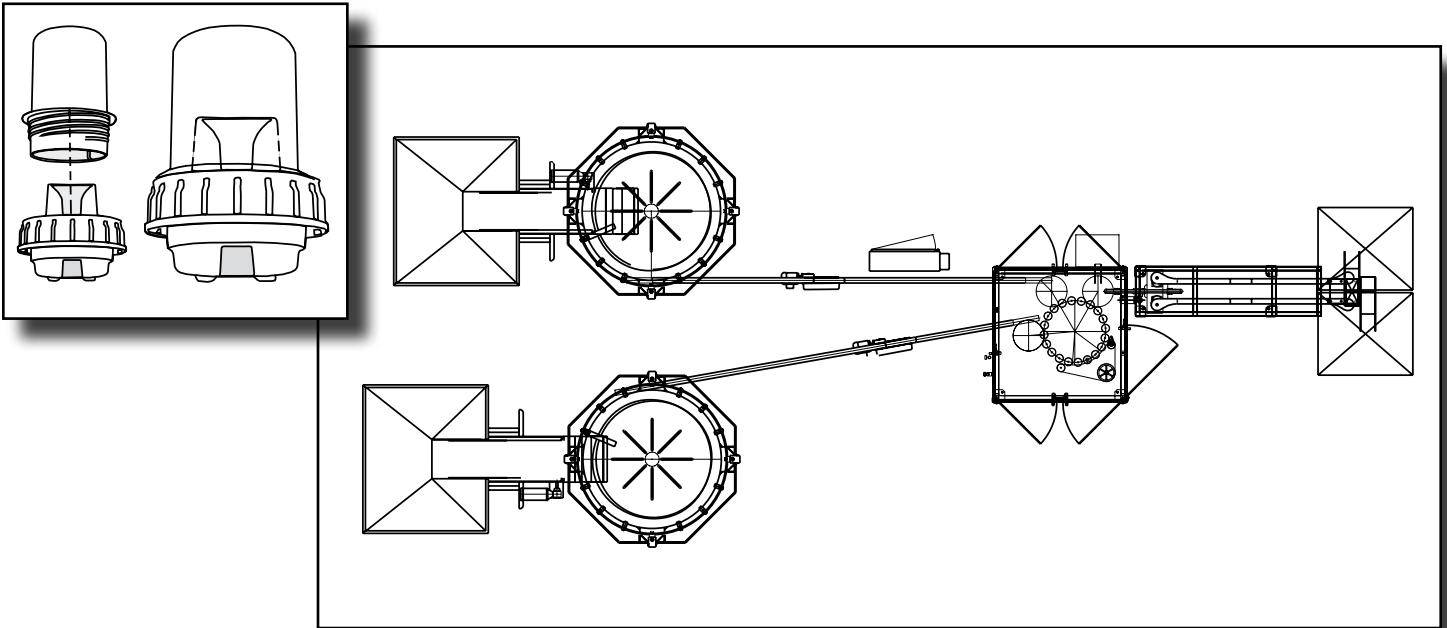
Two pieces: Detergent Spout and Overcap



The Problem: A major household products manufacturer needed a system that would assemble a pour spout collar to its component cap at an output rate of 300 parts per minute. The assembled product must not exceed a predetermined torque when assembled, and must meet the assembled part height inspection to  $\pm 0.015$  inches.

The Solution: Shibuya Hoppmann Corporation designed and built a system using proven assembly methods that are simple and efficient. The system provides accessibility to equipment in both floor plan and feeder elevation, allowing easy maintenance.

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Spout collars and caps are singulated and oriented in separate feeders, and transported along conveyors to the assembly turret. In the turret, each assembly module traveling along a set of cams lowers a spin head down over the incoming cap while it is still in the infeed transfer wheel. The spin head is equipped with an air pressurized bladder. As the spin head lowers over the top of the cap, the air cam inflates the bladder within the spin head to capture and hold the cap. The captured cap is guided along a dead plate.

At the same time the corresponding collar nest is raised up into a collar clamp plate in position directly above the nest. Each collar clamp plate has grooves that are designed to fit over the outer diameter of the collar. The grooves will keep the collar from turning during assembly. The captured cap is lowered down over the captured collar. The assembly module continues along the cam until it reaches the spin belt. The spin belt runs along the top of the assembly module and the magnetic clutch. The magnetic clutch controls the amount of torque put on the parts during the assembly process. Once assembly is complete and the module travels past the spin belt section of the assembly turret and the air turns off. The bladder within the spin head deflates, releasing the cap. The spin head and the collar clamp plate raises up off the parts and the newly assembled spout/cap is inspected (for correct height) and is released from the exit transfer wheel for delivery to downstream equipment.

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