

CLIENT NEEDS

Adept was approached by a Fortune 500 company that refines, blends, and sells fuels and lubricants. They need to increase their output per shift from 12,000 gallons to 20,000 gallons. The client would also like to increase their line speeds.

CHALLENGES

The company was experiencing poor filling performance on the Multi-Purpose Line (MPL), which is a single filling line, that fills 5 different designs of bottles. There are 2 different quart bottle designs, one-gallon bottle design and 2 different 5-quart bottle designs. The new, fully-automated Case Packer and existing Filler performed poorly. Activities executed as part of the Factory Acceptance Test were minimal for the new Case Packer. No subject matter expert on staff to evaluate and make recommendations to increase filling performance. Line speeds need to be increased for quart bottles, gallons and 5 quart bottles. Due to production issues, a third-party manufacturer is being used to fill at a much higher cost.

STEPS TAKEN BY ADEPT

- Solve the current technical problems with the equipment so it runs more reliably at the current line speeds
- Increase the line speeds to "stress" the line to identify technical issues that are preventing the plant from running at a higher speed.
- Determine the best solution to address them and implement those solutions utilizing a mechanical repair, electrical repair, PLC programming change, engineer repair or some combination of these
- Repeat process until line speeds are at desired speed
- Analyzed the equipment with technicians from the equipment manufacturers



SOLUTION

Parts Were Replaced:

- Case Erectors 1 and 2
- Lane Driver
- Drop Packer

Engineering Changes Were Made:

- DePalletizer Stripper Belt: Increased number of paddles from 3 to 4 to significantly reduce number of down bottles on overhead conveyor system feeding Filler

New Case Packer Engineering Changes Were Made:

- Case Infeed Unit: Modified case infeed system so conveyors for each lane operate independently to improve positioning of the board by the pick off robot.
- Squaring Robot/Gluing: Increased number of vacuum generators from 2 to 4 to minimize dropping of bottom flaps during gluing.
- Head Rotation Speed for 5 Quart Bottle: Reduced head rotation speed once the bottles have been picked up by the robot to eliminate bottle dropping problem
- System Install: To compensate for bottle compression at pick up robot
- Infeed Conveyor: Changed number of bottles distributed by Laner from 6 to 3 to reduce bottle pressure difference between lanes

RESULTS



Quarts filling volume up 6%



Gallon & 5 Quart filling volume up 22%



Aggregate filling volume up from 12,000 gallons per shift to 17,000 gallons per shift



\$390,000 reduction in spend by client with TPM's



Single shift production record – quarts 20,058 cases (old record 18,400 cases)



Single shift production record – gallons 9,074 cases (old record 8,800 cases)



Single shift production record – 5 Quart Bottles 9,240 cases (old record 8,000 cases)



Partnered with both union workers and management to drive effectiveness of productivity / efficiency improvement project activities.