

Towel counting machines

Mechanical Engineering

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Abstract

The system of machines is going to be used to count dirty towels that are returned to our sponsor. We've been assigned to improve the accuracy of the towel counting machine. There current method of counting towels was counting them by hand and that was deemed inefficient by our sponsor.

Reason

It was deemed to be the best economic option to counting the larger number of towels given out by our sponsor. Sparing them time and manpower from counting the large volume of towels.

Problem

A laser sensor on the conveyor belt counts the number of towels. Towel clumps are counted as a single towel by the sensor and the machines original design was not singulating the towels as needed.

Solution

To improve singulation of the towels, a spinning cylindrical tumbler will be implemented to better prepare the towels for individual counts.

Design

The tumbler is placed between the hopper and incline with hooks. This will singulate any clumps gathered from the hopper.

Base Tumbler Picture



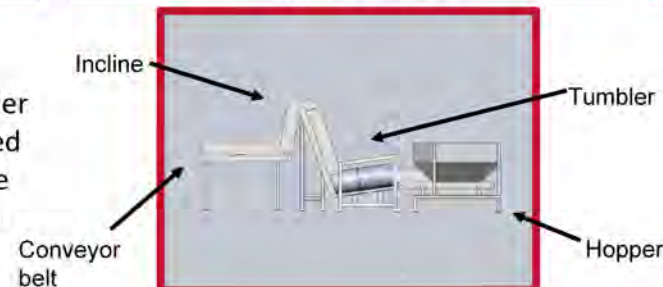
The cylinder device rotates with the use of a motor where towels will enter left to right as shown in the figure.

System picture



Final assembly view. Tumbler will be placed between the hopper and incline.

System picture 2



Sponsors/Conclusion

Adding the tumbler improved singulation, which improved the accuracy of counting from the sensor.