

### Geared Servo Drive System replacing Electromagnetic Clutch -Brake Combination in CSS Lines of a Premier paper Mills



#### About Client:

... A leading and premier Paper and Pulp manufacturer situated in Orissa bordering the state of Andhra Pradesh in India engaged in production of Printing and Writing Paper. In their finishing house they two CSS Lines of Wills origin for A4, A3 and Copier sheets.

#### Solution sought:

In the wrapping machines, the requirement was to cut the wrapper laminate (BOPP–Paper or Polyester-Paper) to a desired size within tolerable limits of +/- 1mm that too without cumulative errors and convey the cut laminate exactly at the position of folding table for Folding, Gluing and Packet formation. The machines were 1960 and 1982 origin. Originally the machine were supplied with Electromagnetic Clutch-Brake combinations to achieve this operation of cutting and conveyance of cut sheets to folding table. But due to inherent weaknesses of Clutch-Brake combinations and mechanical transmissions, the machine was lacking in delivering accuracy in cut length as well as finally placing the cut sheets on folding table in exact position resulting in imperfect packet formation. Also machine set up time was extraordinarily long due to mechanical adjustments required for machine and operation set up. The Machines were also not having capability to execute Registration mark sensing and cutting.



#### Solution employed:

**Dynaspede** with it's inherent strength gained over a period of last 25 years in application engineering and design and development had developed a system revolving around unique **Near Zero Backlash Geared AC Servo Drive system and Particle brake based unwind tension control system** and successfully retrofitted the same on the two wrapping machines of CSS Lines with strong technical support from the client. Two Servo drive systems were deployed in a machine one for Indexing (Wrapper laminate in feed) and other for vacuum feed (wrapper laminate out feed up to folding table)

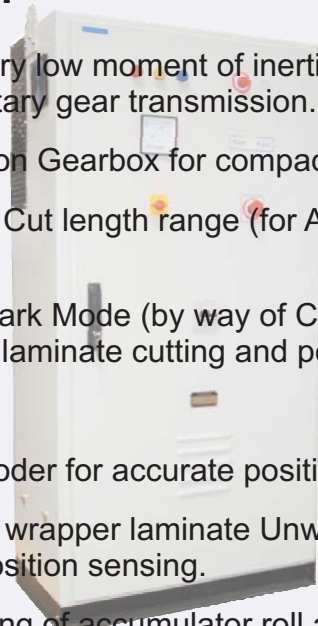
## Advantages of the System:

- Reduction in Wills Cutter production wastage and avoidance of Pemco machines rewapping Operations.
- Reduction in Wrapper Laminate wastage.
- Accuracy of Cut length pegged to +/- 1mm.
- Assured consistency of machine operation.
- Reduced time and Ease of Wrapper laminate length change over through Man Machine Interface.
- Avoidance of Cumulative errors occurrence throughout process operation.
- Facility to add ink jet printer in the machine for printing Batch no., Manufacturing date, MRP Etc.
- Avoidance of subsequent label sticking operation.
- Ready to dispatch Packets directly from the machine.
- Reduction in demand for manual intervention for obtaining optimum performance from the Machine.
- System requirement of Near Zero Routine Maintenance for optimum performance



## Systems Special Features:

- 1) State of Art AC Servo motor of very low moment of inertia with Near Zero back lash (controlled within 5 arc minute at the output) planetary gear transmission.
- 2) AC Servo motor flange mounted on Gearbox for compactness of design and retrofitting ease.
- 3) Systems flexibility to accept wide Cut length range (for A3, A4 and Copier sheets) through Man Machine interface.
- 4) Cut Length Mode/ Registration mark Mode (by way of Color mark sensor sensing Registration mark) possible for pre printed wrapper laminate cutting and positioning operation.
- 5) Accurate Position controls.
- 6) High resolution built in Pulse encoder for accurate position controls.
- 7) "Dynaspede" Particle brake at the wrapper laminate Unwind roll for accurate control of torque based on accumulator roll assembly position sensing.
- 8) Rugged sensor for Position sensing of accumulator roll assembly.



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