

Successful retrofit of Geared Servo drive for Duplex Synchro-Fly Mill duty Sheeter

Dynaspede was entrusted with the work of retrofitting Geared Servo Drives directly coupled to rotating cutter drums to achieve near ideal operational performance from one of the two machines.

The main objectives of the project were .

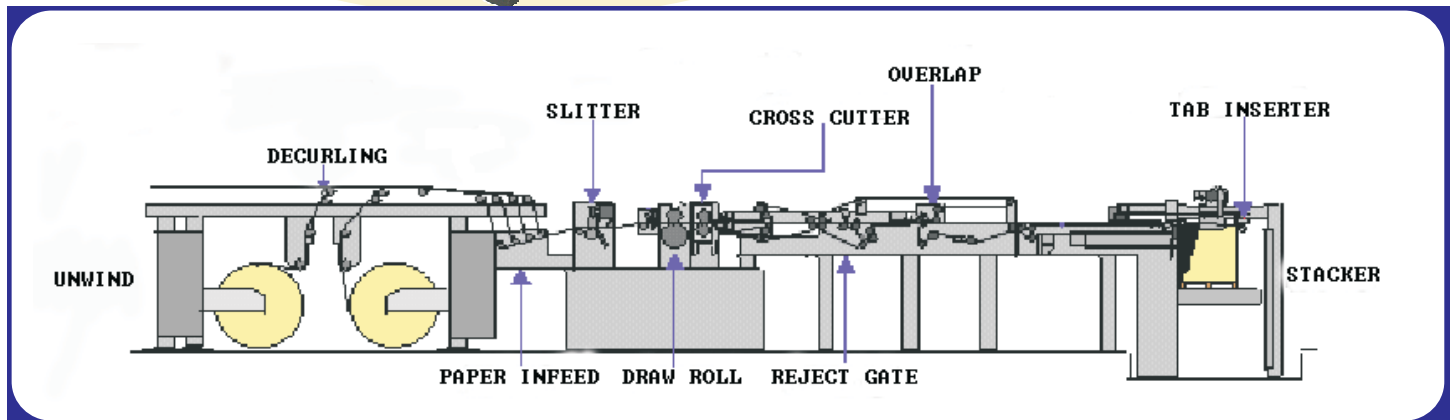
- Replace the Double Drag Link Transmission to each cutter section and drive each section with **Near Zero back lash – Geared Servo drive** with motion profile most optimum for the Synchro-fly Sheeters. **Dynaspede expertise was sought for proper selection of the servo drive rating.**
- To achieve **Cut length accuracies** in line with **international standards** i.e. within 1 mm with the limitations of other old mechanical transmissions
- **Cut length adjustments** were to be through **Man Machine Interface** and **set up time for different cut lengths** was to be controlled within international standards by deployment of the “**Servo drive System**”.
- The main DC motor which was speed controlled by conventional means was to be driven by **Speed feedback based Closed Loop type Digital DC Drive** and the Max. Line speed was to be limited within the design limitations of the machine depending on the Least Cut length set on the MMI automatically.

Customer

...A leading and premier Paper board manufacturer located in Vapi, Gujarat, engaged in production of Paper board of High GSM range. In their finishing house, they have Duplex Synchro-fly Jagenberg Sheeters of 1960 origin catering to their paper board sheeting requirements.

About machine

These Sheeters, were employing **Double Drag Link Transmission and PIVs** (the total machine was driven by a single DC drive of 75HP capacity) for adjustment of cut lengths. The cut length adjustments were mechanical in nature and hence were time consuming and set up time of machine was high and the cut length accuracies were lower.



Dynaspede Solution successfully deployed:

- Two nos Geared AC Servo Motors (back lash of the gear boxes controlled within 5 arc min.) rated 37.5 HP are deployed for the two cutter sections driving the Bottom and top cutter drums of each section together. The original Double drag link transmission for the motion profile generation was removed and the Geared Servo motor outputs were directly coupled to bottom cutter drum shafts
- Fully regenerative AC Servo motor drives are employed for controlling the cutter motion
- Special – Dynaspede complex motion profile is employed for each cutter section drive to achieve cutter operation as required on a Synchro-fly sheeter
- Cut length is selected by the operator through MMI provided on a Operator control station.



High lights of Dynaspede Synchro-fly sheeter Cut to Length systems:

Employment of least maintenance demanding AC Servo Motors.

Gear boxes used are with back lash controlled within 5 arc minutes mandatory for such precise positioning High speed cut to length applications.

Dynaspede Cut to length Unique Motion profile ensures most optimum torque loading on Motors and other mechanical transmissions.

The motion profiles corrects on line automatically corresponding to the variations in the line speeds that occur especially during machine acceleration and deceleration times and hence assuring constant cut length output from the machine during machine dynamic conditions.

The Dynaspede motion profile is designed to ensure avoidance of cross cut Problems.

Large range cut lengths are possible with same accuracy of cutting literally from 450 mm to 4500 mm.

The maximum line speed of the machine for a set cut length is automatically curtailed to the designed max. line speeds of the machine for avoiding over loading and vibration problems.

System retrofit time is designed to be bare minimum to keep the machine down time lowest for the retrofit.



For details and assistance, contact:



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