



COMPLICATED DRIVE TRAINS ELIMINATED WITHIN TEXTILE SPINNING FRAMES

The issue

A based spun glass fibre manufacturer needed to address the over complicated process that existed in the drive trains within its textile spinning frames. The materials it manufactured were used extensively within the automotive industry.

The number of twists per metre in the finished cord was critical and normally determined by the ratio between the feed rollers and the high speed flyers, which lay the cord onto bobbins.

The issue the customer faced was prolonged downtime as changing this ratio, or if the twist direction needed to be changed, required at least three to four hours to remove and fit the different gears into the drive train.

Drive Solutions Centre partner Newton Tesla was approached to develop a solution to this issue.

The solution

Newton Tesla firstly simplified the mechanical drive trains where different parts of the same machine ran at different speeds but in absolute speed and position control. This included eliminating line shafts, jackshafts, mechanical variators and tumbler gears with selectable ratios.

By using the electronic gearbox 'master/slave' function which is built into Mitsubishi A840 drives, it was possible to replace the feed roller drive train with a single ratio gearbox, feed rolls and flyer motor



speeds which were controlled to give absolute speed ratio synchronisation.

As a result, the flyer speed and twist ratios were selected on a Mitsubishi Electric GOT series HMI in seconds, which eliminated downtime. Product codes and twist/speed variables were stored in the HMI to ease product changes.

An important consideration was to keep the feed roll motor and flyer motor in perfect synchronisation during a complete power outage. If this did not happen, the threads could snap.

The solution linked the DC bus of the smaller feed rolls inverter to the larger flyer inverter which was set to 'power failure controlled stop'.

The outcome

The machine could now slow down and stop when a power failure occurs. It stays in complete synchronisation whilst ensuring all threads remain intact.

For further information on our energy saving, monitoring and control solutions please contact:

T. **01707 288780**
E. **automation@meuk.mee.com**

Or search for:
**Intelligence in
Aggregates**



Scan to visit
our website