



D720 USES BUILT IN PID FUNCTION TO CONTROL THREAD

The Issue

A major textile spinning company approached Drive Solutions Centre partner, Newton Tesla to improve the tension control on its bobbin winders.

The existing winders had a dancing arm, which were connected to a power rheostat controlling the voltage on to a torque motor.

Mechanical wear in the system meant that the dancing arm was continually moving up and down which was causing slight irregularities in the wind. As the wind or 'Doff' as it is known in the textile trade takes up to 10 hours, the old system had timers and additional rheostats that increased the tension as the doff progressed.

The solution

Newton Tesla developed a static roller, which was supported by a load cell on each winder.

The solution was rolled out across the 32 winders in the spinning frame.

Newton Tesla also built a new control panel with 32 D720 inverters networked to a Mitsubishi Electric FX3U PLC and GOT 2000 series HMI.

The individual status of each winder and its tension could be viewed on the HMI with the ability to set the wind tension according to the product being wound. The actual tension value from the load cell was compared with a setpoint value using the D700 series PID functionality (commonly used for fan or pump control).



- The PID integral and proportional gain adjustments gave stable tension control
- The need to fit alternative motors was avoided, saving thousands of pounds
- Fewer moving parts reduced maintenance and increases electrical efficiency
- Now able to adjust the global tension from the GOT 2000 HMI and view each spindle's performance
- More consistent tension over the complete Doff

The outcome

The results were better than expected, so much so, the original torque motors (an induction motor with a solid un-laminated rotor) were retained.

DSC Partner Newton Tesla developed a novel solution using entry-level D700 series and as a result, successfully delivered a high return for the customer.

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