

TCO CASE STUDY

PULP AND PAPER INDUSTRY

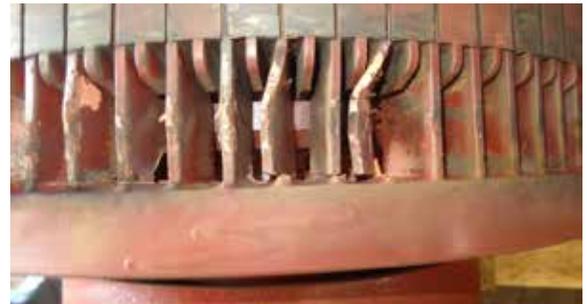
IPS Eliminates Downtime with Variable Frequency Drives

THE CHALLENGE

An Oriented Strand Board (OSB) mill was experiencing multiple failures on motors located on their strander application; the copper bar rotor and windings were failing due to repeated and long reduced voltage starts. The application utilized an autotransformer starter to start each strander motor at 65% voltage. The motors were spending a full 60 seconds at reduced voltage, and there were no lockouts on the motor protection relay to prevent too many starts. When a motor is deprived of voltage, full torque cannot be achieved, and extended periods in this condition lead to rotor heating and damage.

THE SOLUTION

After inspection, IPS suggested the customer install three 2000HP, 4160V, Toshiba Variable Frequency Drives (VFD's) with Synchronous Transfer. Using a VFD allowed the motor to develop 100% of motor torque at starting and eliminated inrush current. A controlled start of the load with no rotor heating was achieved. When the motor was at 100% speed, it was then transferred to utility power removing the VFD losses and allowing a motor management relay to manage the motor profile. This kept the VFD from experiencing intermittent current spikes that come from the nature of the operation, leading to reduced downtime and damage to the VFD.



Extended periods of reduced voltage results in rotor heating and damage.



Failed winding due to molten copper dripping from rotor.



Toshiba T300MV2 VFD with Synchronous Transfer.

RESULTS

Before installing the VFDs, the customer experienced seven motor failures in just two years costing the facility \$1.8 million in repairs and downtime. Since installing the three VFD's the customer has had zero rotor bar or winding failures and they have saved \$840,105.00 in downtime.

REDUCED DOWNTIME
Annual Cost Savings
\$840,000