

Murray Brothers Lumber Co. Ltd. manufactures diversified hardwood products in central Ontario. A Forano wood chipper will chip full length logs up to a diameter of 36 inches. The chipper runs at 385 RPM and is driven by the electric motor at 900 RPM and are linked by a 10 inch wide flat belt.

The Babbitt bearings on the motor are replaced annually due to excessive wear. Both bearings have an inside bore of 4.5 inches with a 10 inch length. When new Babbitt bearings are installed, one to two weeks is needed to seat the bearings and a 25% load capacity is applied to the motor.

When the temperature of the bearings reaches approximately 220° F, both bearings are disassembled to be scraped and cleaned. The units are both reassembled and tested again in order to reduce the temperature below 150° F. As a result, production for a week or two weeks is usually lost due to the down time required for the seating of the bearings.

In August 2003, the Babbitt bearings were replaced and Max-R™ metal treatment was added to the 30 weight, non-detergent oil. The bearing on the drive side of the motor reached a temperature of 120° F with an applied load factor of 25%. After four hours of operation, the maximum load was applied without an increase in temperature.

The following day the full load capacity was maintained and the maximum temperature recorded was 92° F. After three days of operation the unit temperature had stabilized at 79° F with an ambient temperature of 70° F.

In August 2004, the motor shaft play was measured at .004 thousandths of an inch and .003 thousandths of an inch wear was recorded. Normal wear would be approximately .250 thousandths of an inch.

Every six months, when the temperature of the Babbitt bearing increases Max-R™ is applied on the basis of approximately 10% of the initial volume used. The temperature stabilizes at approximately 80° F after three or four hours.

Conclusion:

Max-R™ metal treatment to the Babbitt bearings in this specified application reduced the operating temperature by more than 50%. The analysis did not attempt to evaluate the electrical energy savings in the application of Max-R™ since the operation was not conducive to this field test.

All pertinent records regarding the Max-R™ metal treatment can be attested as to its accuracy by the maintenance supervisor of the company, Mr. Stan Bourtskie.

