

CASE STUDY

BUCKET WHEEL RECLAIMER HPU THERMAL ANALYSIS

✉ sales@pressuredynamics.com

🌐 www.pressuredynamics.com



PRESSURE DYNAMICS

OVERVIEW

Pressure Dynamics completed a detailed thermal analysis of a bucket wheel reclaimer hydraulic power unit (HPU) to assess system performance and identify potential risks associated with elevated operating temperatures. Bucket wheel reclaimers play a critical role in bulk material handling operations, and maintaining optimal hydraulic oil temperature is essential to ensure system reliability, prevent component failure and minimise downtime.

APPROACH

Using advanced modelling and simulation techniques, Pressure Dynamics replicated the hydraulic system to evaluate thermal performance under operating conditions. The analysis assessed heat generation, cooling system efficiency and overall system behaviour, enabling accurate prediction of oil temperatures and identification of key factors influencing performance.

KEY FINDINGS

- Cooling system capable of maintaining acceptable temperatures under normal conditions
- System performance highly dependent on cooler efficiency and maintenance
- Reduced cooler efficiency (below ~80%) can lead to excessive oil temperatures
- Elevated temperatures increase risk of reduced oil viscosity, wear and system failure

OUTCOME

Pressure Dynamics provided targeted recommendations to support system reliability, including maintenance strategies and potential system improvements to maintain cooling performance. This project demonstrates Pressure Dynamics' ability to deliver practical, data-driven insights that improve equipment reliability, reduce downtime and support safe, efficient operations.

