

Slurry and Return Pumps

Symptoms

Possible Cause

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| 1. Pump trips overload (Circuit Breaker). | 1. Pumping too much water.
2. Pump impeller jammed.
3. Motor shorted. |
| 2. Pump runs but <u>no</u> pumping of water. | 1. Impeller disconnected from shaft.
2. No supply water to pump.
3. Blocked line from pump. |
| 3. Pump runs but <u>little</u> volume / pressure. | 1. Lack of adequate water supply.
2. Air trapped or entering system.
3. Soap/foam in system.
4. Impeller vanes worn or damaged.
5. Semi-clogged/restricted line. |

Remedy/Solutions

Besides the obvious solutions to the above 'possible causes', the corrective action may be to re-balance the system. This may be the solution for the return pump tripping, or excessive vibration at the pulper. These both may occur when the return pump is attempting to pump too much water to the pulper.

Re-balance the System

BALANCING RETURN WATER AND ITS IMPORTANCE: Return water is balanced by adjustment of the gate valves. There are three main considerations when balancing. They are pump motor amperage, overflow at the extractor, and return flow into the pulper. As the pulper grinds up the waste, it pumps the slurry (mixture of solids and liquids) to the extractor, which in turn separates the solids out and pumps (via 'Return Pump') the return water back to the pulper to be used again. In order to keep the return water from becoming too thick from constant reuse and a buildup of 'fines', a small amount (usually 1-3 gpm) is adjusted to overflow from the extractor. This water is made up as needed through the water level control system. When balancing, an amp meter is placed on the return pump to avoid over amping the motor. First set the pre-fill static level in the pulper. Start the pulper, then throttle/adjust the gate valves in order to give the appropriate overflow (at extractor) and return flow (at pulper) staying within operating amps of the return pump motor. Decreasing the flow down the trough will increase overflow at the extractor. This may take a few adjustments and readjustments to get correct depending on the size and complexity of the system. After each adjustment a few minutes must be given to let the system settle to see where it balances out. It is wise not to make large or numerous changes at one time to avoid bouncing back and forth (a 1/4 turn on a throttling valve may have significant effects). Start at the end of the trough (spreader plate) and work towards the pulper. Remember, velocity, not volume, is more important. Keep the inlets at the end at a higher velocity to keep the waste moving quickly.