



AW-LAKE
PROCESS FLOW MEASUREMENT



APPLICATION SPOTLIGHT

Stone Crusher Bearing Lubrication within Mining and Cement



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APPLICATION:

Stone crushers are used in the mining and cement industries to grind rocks and coarse materials into smaller gravel or particles for disposal or to make stone aggregate or powder. A stone production line may use a series of different types of crushers to reduce particles to different gradations. These may include jaw crushers, cone “gyratory” crushers and impact hammer crushers.

All crushers employ bearings as part of their mounting configuration. For example, jaw crushers typically use spherical roller bearings that support radial loads and misalignment while operating under moderate speeds and loads. Cone crushers employ both radial and axial bearings. These bearings operate at moderate speeds while supporting heavy loads. Hammer crushers that have high rotation speeds with variable loading conditions use spherical roller bearings that can handle radial loads and shaft misalignment.

Bearing damage can occur due to contamination or metal-to-metal wear resulting from inadequate lubrication or the use of the wrong viscosity oil. A crusher lubrication system enables operators to routinely monitor oil, especially as demanding equipment operating conditions can cause sudden changes in performance. The crusher lubrication system employs a flow rate alarm that monitors the flow of lubricants in the process and sounds an alarm on minimal flow conditions.

PRODUCT SUPPLIED:

AW-Lake Flow Rate Alarms custom designed with an acrylic window

CHALLENGES:

The flow rate alarm must have the ability to accurately monitor the flow of lubricants of different viscosities under harsh conditions.

SOLUTION:

AW-Lake Flow Rate Alarms are used as part of a crusher lubrication system to verify an adequate oil flow on the bearings of the crushers. Without proper lubrication, the bearings can prematurely wear due to friction. Under a condition of minimal flow, the alarm notifies operations of incorrect lubrication volumes, protecting bearings from failure that can result in downtime.

Installed directly in the oil line without flow straighteners or special piping, the Flow Rate Alarm measures the flow rate of the lubricating oils using the variable area technique. The customer wired the Alarms to set off audio and visual light alarms when the flow of oil drops below a certain flow rate threshold. This is critical because a dropped flow reading could indicate a leak or other problems within the lubrication system. The AW-Lake Flow Rate Alarm helps to ensure adequate bearing lubrication to avoid downtime and costs associated with installing new bearings to replace damaged ones.