



APPLICATION REPORT Minerals & Mining

Electromagnetic flow measurement in mining and concentrating mill for copper and molybdenum



- Measurement of highly abrasive pulp slurry
- Use of a flowmeter with abrasion and wear resistant polyurethane liner
- Cost savings due to reduced maintenance and increased uptime

1. Background

The Erdenet Mining Corporation is one of the largest ore mining and processing factories in Asia. It started operation in 1978 and is a joint venture between the governments of Mongolia and Russia. The main mineral deposit, extracted by the Corporation is Erdenetiin-Ovoo area, 400 km northwest of Ulaanbaatar. At present, it is a fairly large complex processing 25 million tons of ore per year and producing over 530 thousand tons of copper concentrate, which is about approximately 7% of the global production and 3.0 thousand tons of molybdenum concentrates annually.

2. Measurement requirements

The mining company uses flowmeters for pulp measurements in one of the last phases of its production process after the dewatering has taken place. The pulp is highly abrasive and has a high density of 1.24 g/cm^3 . The flow rate per pipeline is $10.500 \text{ m}^3/\text{h}$. The temperature of the slurry varies between $+3^\circ\text{C} / +37.4^\circ\text{F}$ in wintertime and up to $+20^\circ\text{C} / +68^\circ\text{F}$ in summertime. The process pressure is about $3 \text{ bar} / 43.5 \text{ psi}$. The flow measurements are essential in order to fulfill the environmental protection regulations. The electromagnetic flowmeters measure the volumes of pulp going into the dump.



Mining area



Three lines with flow meters

3. KROHNE solution

The Erdenet Mining Corporation has chosen the KROHNE's all-round specialist, the OPTIFLUX 4300, for this demanding slurry application. The electromagnetic flow sensors have a robust fully welded construction. The required diameters are 1200 mm. The rugged polyurethane liner has an excellent abrasion resistance, required for the high density pulp. The liner has a thickness of 24 mm so that the inner diameter of the flowmeter exactly matches the inner diameter of the connected process pipes. With abrasive media, even the smallest difference in inner diameter can accelerate wear. The flush mounted hastelloy C4 electrodes create less obstruction in the flow and therefore are less subject to wear and noise. The electrodes have a low noise coating which is extremely durable for an extended lifetime and create less noise. Special protection rings are used for the protection of the liner: On the inlet pipe run protection ring No. 3 is used, and on the outlet pipe run protection ring No. 1. The IFC 300 signal converter offers intelligent noise filtering techniques. The integrated process diagnostic functions of the IFC 300 can be used for appropriate parameter setting and provides information on the status of the sensor, the converter and the process.

4. Customer benefits

The customer has chosen for OPTIFLUX 4300 because of its good performance, very robust construction and longer lifetime. By choosing a high quality solution for measuring this highly abrasive slurry, the Erdent Mining Corporation has the benefit of reduced maintenance and an increased uptime of the production. Replacing flowmeters with a diameter of DN1200 is already expensive but the additional costs of production downtime and production losses can be even much higher.

5. Product used

OPTIFLUX 4300 F

- Electromagnetic flowmeter for advanced process applications with abrasive slurries
- Extra thick liner to match the inner diameters of the sensor and the pipeline for a longer lifetime
- Flange: DN2.5...3000 / 1/10...120", max. PN40 / ASME Cl 1500



Contact

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Do you require technical advice for your application?

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