

Weir Minerals

Improving Pump Maintenance Inspection

Weir Minerals is an industry leader in manufacturing, supply and Maintenance of pumps and valves for the mining and minerals industry. As part of the 140 year old Weir Group, Weir Minerals pride themselves on their engineering excellence and their services that ensure customers suffer minimum possible disruption as a result of equipment failure. Achieving that depends on well organized, professionally carried out, equipment inspection and maintenance.



Weir Minerals equipment is installed in the mining and mineral industries to keep sites clear of water and to pump slurry. Weir pumps are used in high-volume, high wear, applications in demanding environments such as sand and gravel extraction, coal mining, and power stations throughout the world. To help improve maintenance inspections, Weir Minerals turned to CoreRFID and the CheckedOK inspection and data collection system.

Maintenance Inspection & Failure Prevention

If pumping equipment fails, mining and extraction operations can be seriously disrupted. Equipment failures can cause delays to extraction while repairs are carried out, site closure while replacement equipment is delivered and installed – possibly for long periods in remote areas – or even threats to the life and well-being of mining teams. Weir Minerals aims to minimise the risk of failure through innovative product design, planned preventative maintenance and by predicting failures by monitoring the condition of pumps. Consequently, regular field inspection of pumps is an essential part of pump servicing.



A Warman centrifugal pump from Weir Minerals, typical of the equipment being inspected & maintained.

Collection of pump performance data is an important part of the service provided by Weir Minerals but it can be difficult to collect and process data quickly. Collecting information manually takes time and effort and transcribing data is expensive, time consuming and can introduce errors. Weir Minerals wanted a system to collect data at the point of inspection so that engineers could be prompted to record all the information needed. Data – once entered – could be sent back quickly for analysis, allowing potential problems to be spotted before they became critical.

Mobile computers are an effective way of capturing data in applications like this. Weir Minerals also wanted to use electronic tags and barcode labels so that individual items of equipment could be identified. Barcodes offered a low cost way of identifying some items but electronic tags had the added benefit of assured readability in dirty environments. Once the individual pump is identified, the inspecting engineer can record data such as bearing temperatures, vibration levels, current power consumption, water pressures and so on. The system also allows a pump to be flagged as non-operational and for follow up actions – such as a re-inspection – to be noted.



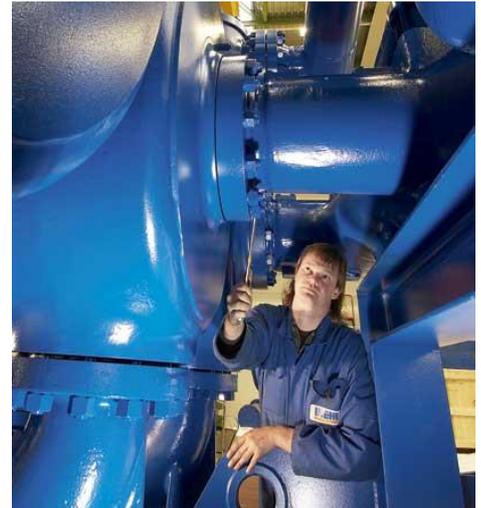
“Improving the availability of pump performance data is important for us. The CoreRFID system speeds up data collection and improves accuracy.”

Paul Brooks, European Service Support Manager, Weir Minerals

The Value of Data

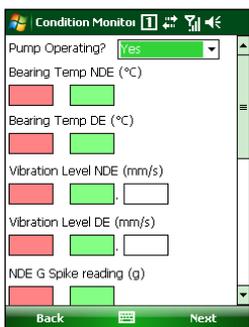
The value of the CheckedOK system used by Weir Minerals is that the data collected gives them the opportunity to take corrective action before a pump fails. Data collected by the inspecting engineers is sent using a GPRS network to a central database which holds details of all the inspections carried out. This information is immediately available to Weir Minerals staff using a simple web interface and is also accessible to Weir Minerals customers. The key benefit of the system is in the reduced time it takes for the collection and distribution of this data.

The system has various features that increase the value of the data collected and reduce the risks of error. For example, at each site the engineer is given a list of all pumps needing checks so that there is a reduced risk of equipment being overlooked. Reports from the database allow the values for pumps of a similar type to be compared. The values of critical data over time for an individual pump can be shown graphically, highlighting trends in bearing temperature or vibration, for example. The ability to analyse historic data in a timely and easy way is critical for predicting problems.



Since its initial implementation, Weir Minerals have already extended the system, with additional features such as the ability to show data for parts within an overall assembly (bill of materials). They are also adding language support for 9 additional languages to support the deployment of the system across their European operations.

The CheckedOK System



Weir Minerals pump inspection systems uses the CoreRFID CheckedOK application. CoreRFID developed the pump data capture forms for the engineer’s handheld computers and created specific reports required by Weir Minerals. CoreRFID also supplied the necessary handheld computers and electronic tags.

CoreRFID worked with Weir Minerals to choose a range of tags suitable for the equipment being checked and the installation environment. The system was easy for Weir Minerals to implement. By using a database hosted by CoreRFID, Weir Minerals did not need any additional investment in their existing IT infrastructure. The Weir Minerals system will initially support data collection from pumps throughout the UK, servicing customers in the coal power and aggregate extraction industries.

The Benefits

The Weir Minerals system provides:

- Prompting for data required
- Collection of current and historic data for trend analysis
- Site lists of pumps for inspection
- Accurate recording of inspection results
- Immediate access to inspection results

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