Coolant control at a metallurgical plant in Russia

Challenge

Almetyevsk Pipe Plant is a Russian manufacturer of steel products. It is part of United Metallurgical Company JSC.

To ensure the high quality of products, it‘s crucial for the plant to control the entire metal production process. A key condition for high-intensity materials processing is friction and temperature reduction using cutting fluid (coolant).

If you don’t control and don’t adjust the concentration, level, and other parameters of cutting fluid, the equipment wears out, processed parts and tools are damaged, resulting in defects, reduced production intensity, or its shutdown. It all leads to serious financial losses for the plant.

Almetyevsk Pipe Plant turned to Wialon's partner, the Tetron company, for a solution to monitor the cutting fluid.

Solution

Our partner offered a multi-level solution that provides:

- collection of the coolant parameters from industrial sensors of various types and their transfer to the Tetron terminal via the MotbasRTU protocol;
- visualization of parameters on the relay with the OWEN PR200 display, data output in the monitoring system;
- employee notifications if the coolant parameters go beyond the set limits.

To collect and transmit data, the provider **used a Tetron terminal** with carefully selected necessary components. The device measures cutting fluid temperature and level, its concentration, and pH level. Since the terminal operates in a contaminated environment, Tetron installed **an additional cleaning system for the device** and wrote a special program that **automatically starts flushing the sensors** after data collection.

The data is transferred to Wialon, the platform processes it and presents it as diagrams in reports. The data is displayed in the Wialon mobile and web applications.

The Wialon functionality, which Tetron and the client used, allows the user to specify **acceptable value limits and set up notifications** if parameters exceed these limits. You can monitor cutting fluid parameters online and analyze them over the desired period. You can also make data-based decisions (for example, about adding the liquid if its level has dropped).

Results

Tetron developed a comprehensive solution that monitors the cutting fluid usage in challenging conditions and transfers accurate data to the dispatcher. Control over the cutting fluid parameters allows to perform equipment maintenance on time and prevent production slowdown and shutdown.

The plans are to develop the system further so that it automatically maintains the cutting fluid concentration, level, and pH and orders the fluid according to consumption.

Saving up to $32,000

This is how much the customer reduced the annual cost of laboratory tests.

Number of defects reduced by 50%

Using the solution results in fewer surface damages and better product quality.

Relevant data

The client always has relevant data on the cutting fluid concentration, level, and pH on a computer screen and a mobile device.

Wear and tear reduction

In production, the wear and tear of equipment and its repair and maintenance costs are significantly reduced.

Company profile

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