

A retrofit that saves you money

Wireless temperature monitoring for detecting damage to bearings



Ilseburger Grobblech GmbH is a subsidiary of Salzgitter AG. It produces more than 880,000 short tons of heavy plate annually. Plates ranging from 0,20inch to 4,92inch in thickness are rolled from steel slabs supplied by its sister company, Salzgitter Flachstahl AG, for use in a wide range of applications such as heavy plate for the central train station in Berlin or shipbuilding steel for the "Maersk Beaumont" container ship (almost 984ft long and 105ft wide). Up to 17,000 plates are shipped each month to customers worldwide.

"Using this wireless solution from Endress+Hauser, we were able to retrofit our system at a lower cost than expected. We are confident that we now have an optimum overview of the status of our roll neck bearings and that we can maintain the system and replace bearings according to schedule, regardless of any faults."

Jörg Wahnfried,
Manager of measuring and control,
Ilseburger Grobblech GmbH
Germany



Simple integration of all field devices with WirelessHART.



WirelessHART Fieldgate SWG70 and Adapter SWA70 for quick integration into the WirelessHART network.

Every company has an interest in making sure that its processes are running at optimum levels. Incidents which cause a system to shut down may not only lead to costly repairs but may result in considerable losses. Ilseburger Grobblech GmbH optimized its plant availability through recording temperatures at the roll neck bearings and a straightforward implementation using WirelessHART.

The results

- Detection of any damage to the friction bearings
- Predictive maintenance intervention
- Protection of the extreme costly friction bearings

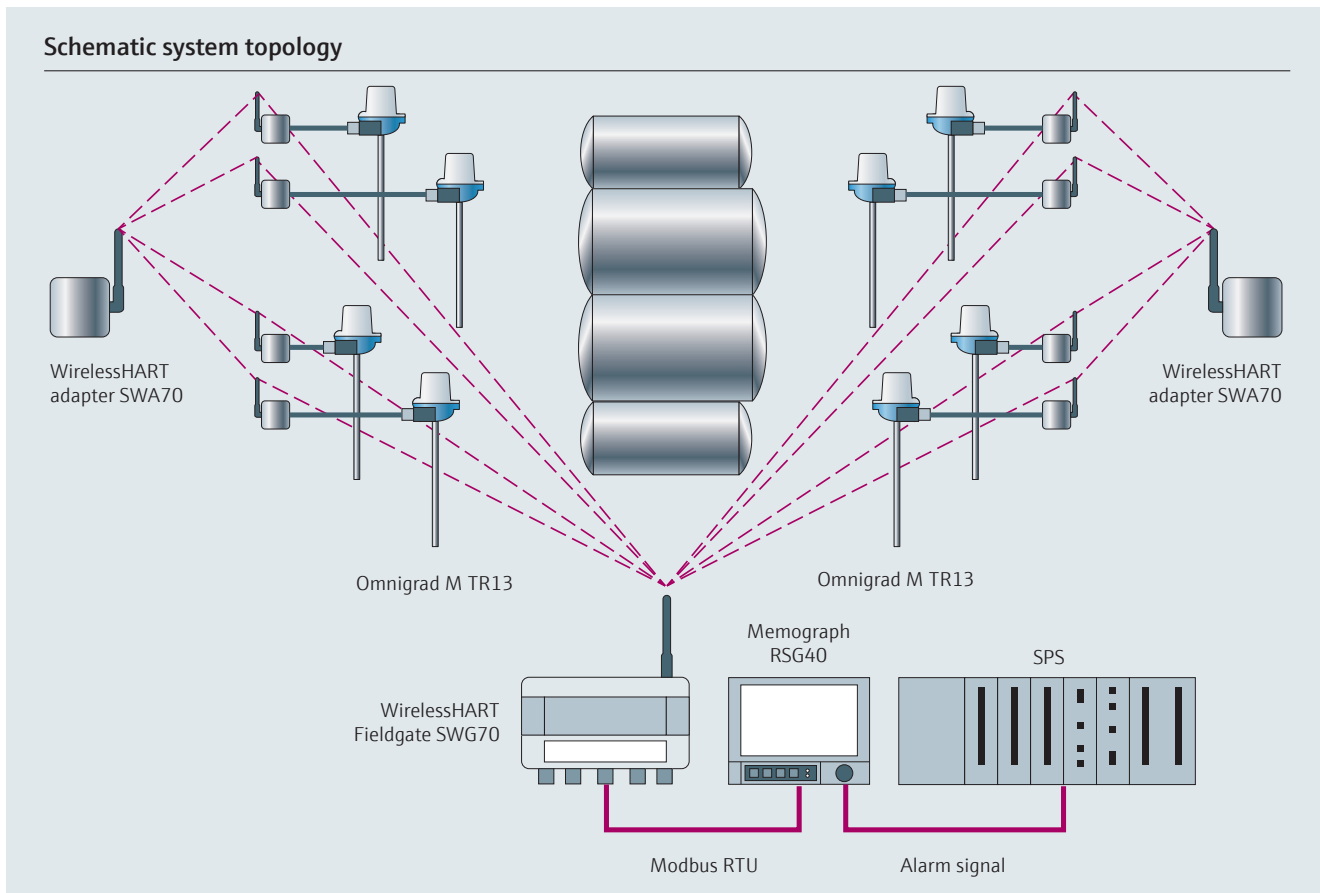
Customer challenge The four-high rolling stand at Ilseburger Grobblech comprises of two work rolls which reshape the steel slabs directly, and two back-up rolls, which transfer roll pressure to the work rolls. The four-high

stand has a maximum rolling force of 80,000 kilonewton. This situation is very demanding, even for roll neck bearings. The roll neck bearings are located on the operating and drive side of the upper and lower back-up rolls. These are known as Morgoil® friction bearings. A lubrication circuit ensures that the Morgoil bearings get the lubrication they need. The temperature of this circuit should be monitored at the inlet and outlet.

An increase in the temperature differential indicates a higher degree of friction inside the bearings which may result in damage. However, the ambient conditions which prevail at the rolling stand make it difficult to wire up the necessary temperature sensors securely.

The solution For temperature measurement, TR15 resistance thermometers with a weld-in thermowell and replaceable insert are used. These have already proven their worth a thousand times over in

Schematic system topology



challenging industrial applications. Each temperature sensor is fitted with an adapter which enables wireless data transmission based on the WirelessHART standard. Due to space limitations and possibly restricted radio communication, installing the adapter directly on the temperature sensor is not advised. The adapter is therefore installed remotely and connected to the temperature sensor using a short cable. The adapter not only facilitates data transmission, it also powers the connected device via the battery integrated in the adapter.

Solution details Each adapter works as a transmitter and receiver, ensuring the data can be transmitted to the WirelessHART gateway, even if direct radio communication is not possible. The WirelessHART gateway forms the central access point to the WirelessHART network and manages communications. The gateway automatically

assigns the communication paths in the network as well as the times for the data packets. This means the new measuring points can be retrofitted easily.

From the gateway via Modbus RTU, the measured values are displayed on a Memograph RSG40 graphic display recorder. From there, they can also be transferred to downstream control systems. The eight measured values are monitored permanently. If a set threshold is exceeded, an alarm is triggered via the control system.

Your benefit This solution ensures that, with little effort in installation and commissioning, any impending damage to the friction bearings is detected and a maintenance intervention is initiated in a predictive manner. This type of friction bearing, its installation and removal as well as the associated production downtime, is extremely costly.

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