

AvestaPolarit – Staying cool with the R-series



30 tonnes of steel

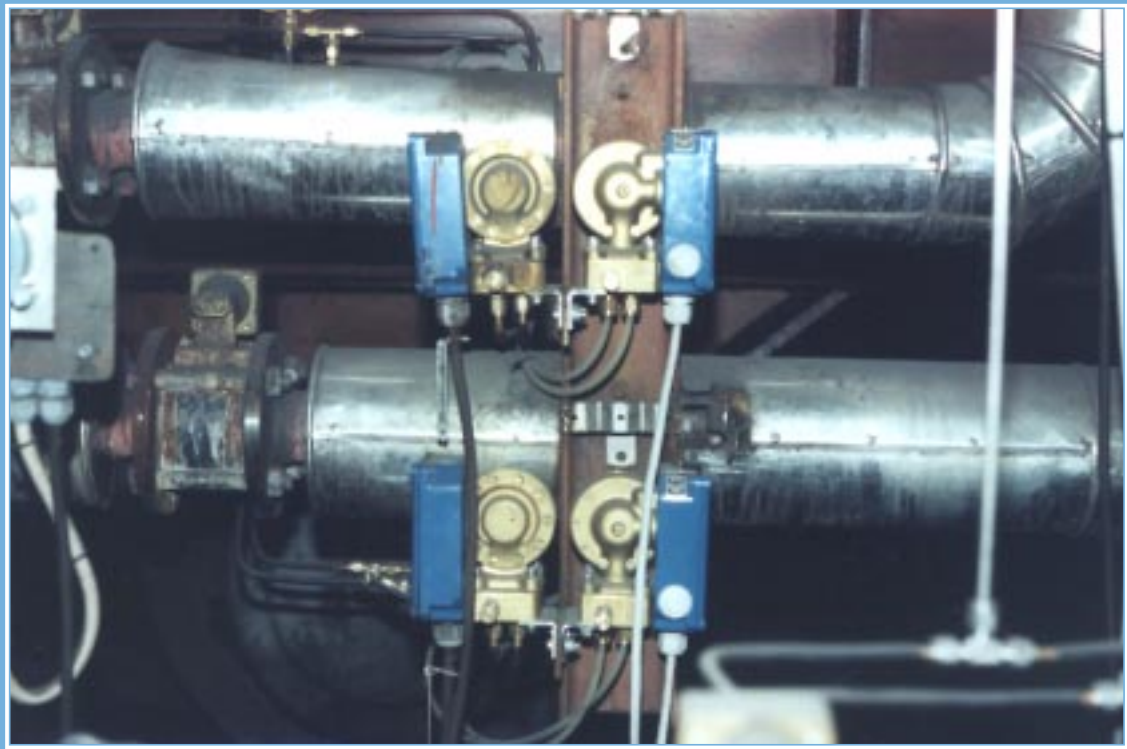
The long-standing customer, Avesta Polarit was the first customer of the R-series. Circumstances were dramatical when the first units were delivered – 300 kilometers by taxi! Influencing the choice of Eletta was the good record of the company's previous products regarding longevity, reliability and durability.

Decisive factors – summary:

- Need for 4-20 mA output
- Need to create a log
- Favourable price compared to pressure transducers
- Connected to existing Eletta pipe section
- Good experience for Eletta
- Quick delivery
- Rugged
- Good record of reliability

Eletta flow

when you want to know



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Background

In the steelworks of AvestaPolarit 700 employees annually produce 800 000 tonnes of stainless steel. In the steckel Mill there are two walking beam furnaces, each approximately 20 meters long. One is a French built Stein Hurty equipped with 46 propane burners while the other one, an Italimpianti, has 72 burners.

The furnaces are fed with slabs, a pieces of crude steel ingot, 11 meters long and 2 meters wide that can weigh up to 30 tonnes. The process of heating up the slabs takes about three hours and during this time the slabs are transported through the furnace on bricked steel spars placed on movable load carriers. When the temperature of the slab has reached 1150°C (2102 F) the slab leaves the furnace to be hot rolled (in the steckel hot roll mill). Here, the red-hot slab is turned in to sheet metal, sometimes as thin as two millimetres.

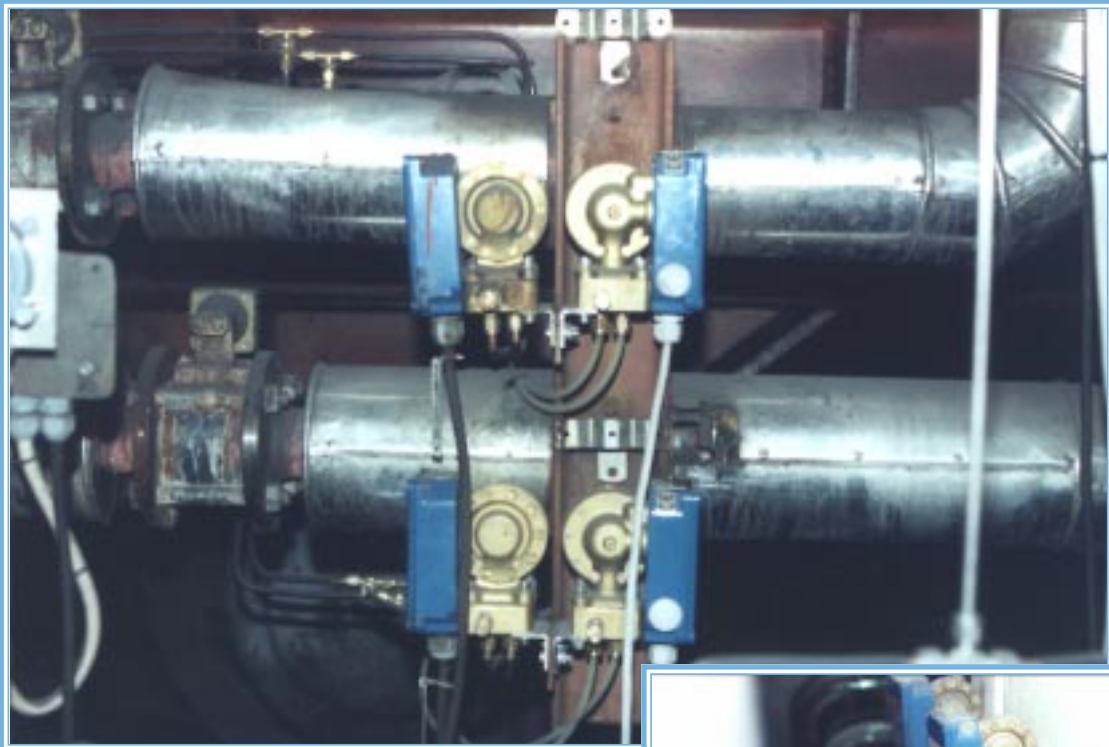
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Problem

Problems occurred on numerous occasions regarding the cooling of the load carriers. The flow of cooling water was insufficient and the alarm was set off at several times. Eventually at the end of the summer the plant suffered a complete breakdown due to insufficient cooling.

The result was a two-week stoppage with subsequent loss of production. Obviously, measures had to be taken to avoid future breakdowns.

This could be achieved by improvements in monitoring and controlling the flow.



The R-series seen together with the previously installed V-series.



Line of argument

Eletta V-models had been installed and used for many years. The installation was made as a separate mounting of the pipe section and the control unit, this of course due to the high temperature in the process line.

Of course, the V-models did not measure the flow as they are only intended to set off the alarm at a pre-defined point. The V-models had functioned properly but this clearly was not enough. AvestaPolarit felt a need to increase the amount of information in order to be able to see early fluctuations in the flow.

Fortunately at that time Eletta had a new product almost ready: the R-model. With an R-model it would have been possible to:

- Measure the flow
- Monitor the flow both momentary/instantaneous as well as over time, creating a log.

The total number of Flow Monitors needed was about 15; therefore the price per unit was of importance. Being able to measure a larger portion of the flow of the application might have been interesting but it would have required a more expensive solution such as, for instance, differential pressure transmitters. A thorough analysis resulted in the choice of the R-model since it proved to be the most cost-effective solution.



Note the remote mounting of the R-series

Solution

Sales of the R-model had not yet begun but a certain number of flow monitors were available. Since the plant suffered from an irregular shut down due to problems in the cooling system there was a severe lack of time. A number of Eletta R-models were actually delivered from Eletta's plant south of Stockholm by taxi, a distance of 300 kilometres!

The reasons for choosing the R-model were *tradition*, *economy* and *innovation*.

Traditionally Eletta has enjoyed a good reputation for durability and reliability. To a great extent the R-model is similar to the V-model. The diaphragm, diaphragm house, lever and control unit are all identical. This makes it possible switch to an R-model wherever a V-model has previously been installed.

The innovative part is the electronics. The R-model is equipped with an electronic circuit board capable of delivering both a frequency and an analogue linear output. The frequency output is 200 – 1000 Hz and the analogue output is 4-20 mA.

It also gives a highly repeatable output signal and often excludes the need of using more expensive accurate flow meters. It also provides

the opportunity to receive the information in a supervision system in a remote control room.

The R-series is cheaper than the A-series since it lacks local indication and integrated relays. Basically these two monitors complement each other. In Avesta Solarit's case the A-series would have been a far too expensive since there was no need for local indication. Another alternative could have been pressure transducers but that would also have proved a more expensive solution.

Outcome

By installing the Eletta R-model the monitoring of the cooling system has become much more accurate. The new monitors have supplemented the old V-models that are still in operation.

In spite of the fact that the product was completely new at the time the reliability has proved to be excellent. AvestaPolarit has been the "pilot customer" of this new product and the result has been satisfactory.



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