

SAET • Turin • Italy

SAET – an Italian Success Story



SAET is one of the bigger induction heating manufacturers in Europe

Based in Italy and close to Turin, SAET is well situated to be a major player in the heat induction business, not least because of its proximity to FIAT. SAET is one of the bigger induction heating manufacturers in Europe and definitely the biggest in Italy. It employs approximately 100 people and more than two thirds of production is exported worldwide.

Decisive factors – summary:

- Repeatability
- Dependable - not sensitive to additives in the water
- Affordable – V-series
- Local read out – S- and A-series
- 4-20 mA output – A-series
- No on-site calibration needed

Eletta flow

when you want to know



Picture showing the cooling process.

First shower (left) controlling the process, and the second shower (right), actually cooling down the piece of metal.



Line of argument

For a period of time SAET used their own rotameters. They were doing the job well but in the long run it proved to be too an expensive and time-consuming business.

A customer from the automotive business, producing gearboxes came in with the request for the Eletta Flow Monitors.

There is no real need for pinpoint accuracy which means the Eletta flow monitors are well suited. They offer a good combination of accuracy for the money. In addition, the different series in the range offer a variety of characteristics while using the same modular design with the same pipe sections.

The Eletta Flow Monitors meet the requirements in a number of ways:

- High need for repeatability. The plant delivered by SAET is first built on site and run for

a week to assure that it is functioning properly. Having been approved, it is then disassembled before shipment and put into working order once again when it has reached the customer's site. This makes repeatability a crucial factor. This is a requirement that all products in the Eletta range live up to.

- Dependable and affordable. Turbines are too sensitive to the additives in the cooling liquids. This additive does not pose a threat to the Eletta Flow Monitors, which work according to the differential pressure principle and have no moving parts. This is where the V-series comes into its own.
- Need for local readout. The A- and S-series both meet this requirement.
- Need for 4-20 mA. The A- and R-series provides an output signal.

Background

Induction heating is a method used for local surface hardening. This can be done either by heating the material with gas or by induction heating. When a piece of metal is subjected to an alternating current (AC) magnetic field it starts to heat up. By controlling the amount of energy, the heating can be easily controlled. Heat builds up inside the work piece virtually instantly. The heating effect increases as the field strength increases and it is also influenced by the properties of the heated material.

The process basically means heating the surface to a certain depth and then cooling it by using a liquid. The liquid is often water with some kind of additive. The advantages of using induction heating instead of gas are numerous: rapid heating cycles and quick cooling times mean better utilisation of the equipment, induction heating is also well suited for automated manufacturing processes. No smoke or other emissions result in a cleaner working environment. Energy consumption is also reduced since the heat is induced inside of the work piece.

Guiseppe Rubatto, Sales and Marketing Manager of SAET, explains how the company operates - "Each plant is designed and built according with the specific requirements for an application, decided by the customer. In other words each plant is tailor made for each specific metal component".

The plant delivered is first built at SAET and run for a week to make sure that it is operating properly. This is of course an activity that consumes a lot space, 14 000 m² to be precise. It is then disassembled before shipment and put into working order once again when it has reached the customer's site. Items of equipment treated by SAET plant include are flexible coupling, stocks, axle shaft, clutch components, racks, pins and bushes, chain tracks, valves and saet valves.

The plants are delivered to companies around the world, not least the automotive business but also trucks, trailers and components for automotive industry.

Problem

Induction heating equipment basically consists of

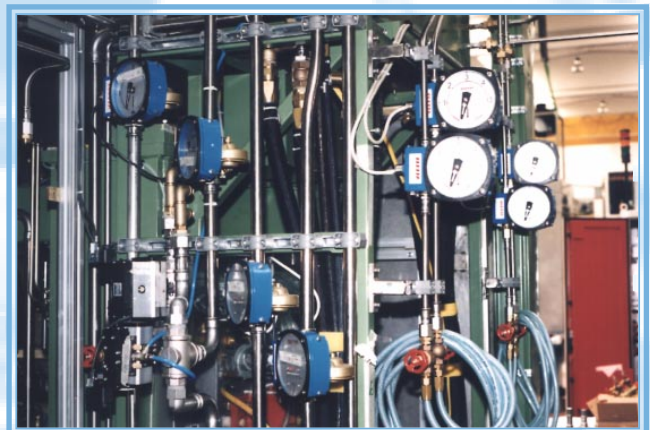
- high frequency generator/alternator
- induction coil
- cooling devices

Induction heating is used for brazing, soldering, annealing tempering and hardening. The latter is the best-suited application for Eletta's flow monitors since it is the process where the piece of metal is actually immediately cooled down by showers. It is also possible to heat up pieces while they are moving. This is particularly important, for example, when working with camshafts for combustion engines.

Measuring the flow at a reasonable price was a problem that needed to be solved. It sounds like a simple and well-defined problem, but considering the amount of flowing liquids you need to monitor, there are many aspects, which have to be taken into consideration.

Different methods of cooling are used in different stages of the process:

1. Cooling of the high frequency generators
2. Cooling of the material in the first shower
3. Cooling of the material in the second shower.



Some of the major customers are:

Cars

Fiat GM Powertrain
GM
Peugeot/Citroën
Renault
EEA

Trucks

Scania
Iveco
Arvin Mentor
Renault VI.
Arvin Mentor

Components

Delphi
TRW
Volkswagen
KOYO
Bishop Mercedes Benz
American Axle

Special applications

Comau
Krupp Thyssen
GKN



Virtually all equipment from SAET is fitted with the Eletta Flow Monitors.

Solution

Eletta V-series: This flow monitor is put into the power transformer section where an alarm indicating low flow is needed. It is basically used in the cooling of the high frequency generators.

S-series: Used in the in the primary as well as secondary showers. The need is for both an alarm and a local indicator. However, the monitor is not a part of an integrated automatic control of the flow.

A-series is used in the same shower units as the S-series. Naturally, the A-series can handle bigger tasks, the units are associated to an automatic control of the flow rate as well as the other parameters in the process.

Outcome

Basically the outcome has been very favourable, with a dramatic increase in SAET sales due to virtually all equipment from SAET now being fitted with the Eletta Flow Monitors.

Some plants are still being equipped with rota meters but they are to be phased out.

In some cases the Eletta Flow Monitors are too big in size but in general the Eletta is the preferred supplier of flow monitors to SAET.



Eletta Flow AB

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