

ES III™

Advanced Control

Features

The ES III™ system is a comprehensive supervisory advanced control tool to reduce melting, refining and conditioning costs. ES III™ is applicable for furnaces, working ends and forehearths - individually or in combination.

Unfortunately (but typically), there are many variances that can occur during a day such as pull, job changes, batch composition or fuel analysis resulting in changes in temperatures, and the glass temperatures in particular, energy input etc.

Thus all the process variables have a certain deviation, whereas the stability today is far from being ideal - the more stable the better and more economical for an operation.

To guarantee glass quality and to take the mentioned fluctuations into account, hot end operators need a lot of efforts and a certain surcharge of energy.

On the other hand the control system is not fast enough to achieve the new temperature setpoints ending up in a certain and unnecessary degree of rejects.

Based on CFD and a correlation analysis of all the process variables, e.g. the glass temperature in the throat or at the end of a forehearth, ES III™ predicts changes of the variables before they occur enabling the PCS to react in advance.

The result of these advanced model predicted control loops is a much lower deviation of the variables and finally lower setpoints are needed.

The ES III™ systems takes a job change into account before it becomes effective resulting in a reduction of rejects.

In addition, caused by lower temperatures, the furnace life will be prolonged with less refractory corrosion and wear of components such as electrodes or electrode holders.

Another possibility of using ES III™ is to let the system operate the furnace in the most economic way.

This means, that ES III™ is substituting the more expensive energy (electricity) with the lower cost energy (natural gas).

As being said, cost reduction today is a key task for every glass plant whereas energy costs and costs associated with emissions are more and more vital.

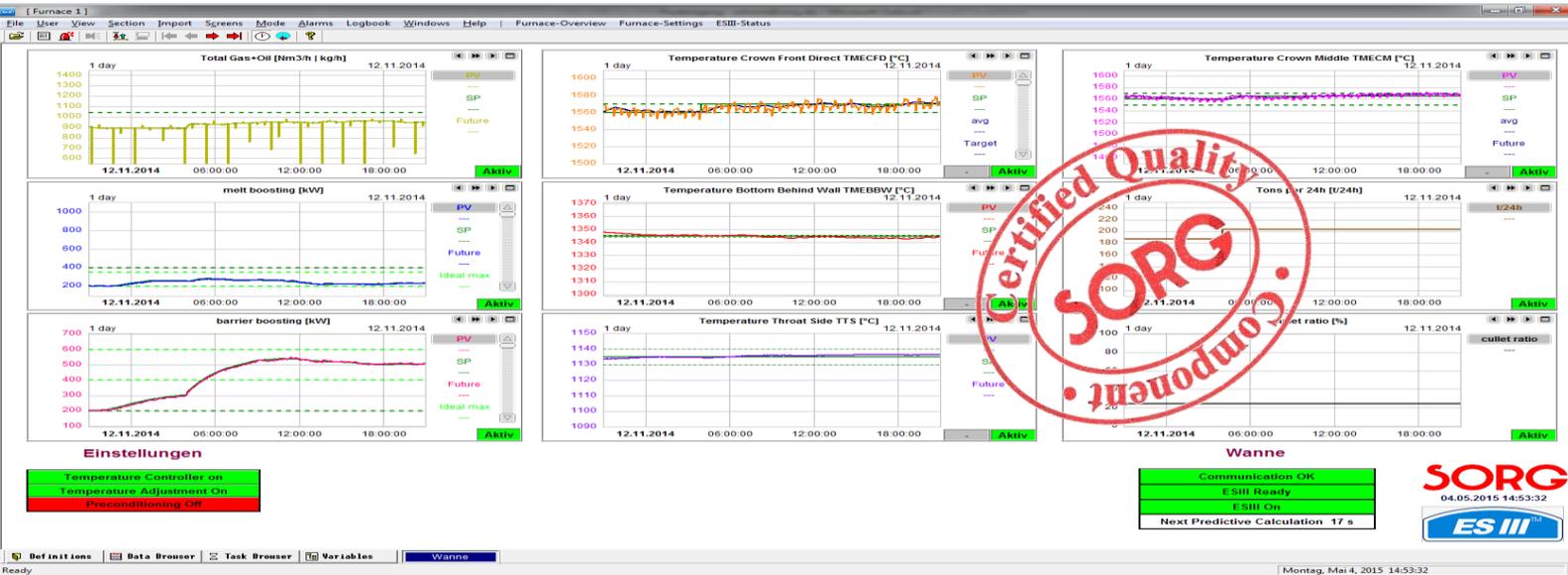
ES III™ can also be used to operate the furnace in the most ecological way whereas the customer defines what type of emission is the most critical.



Collaboration with

SORG and GLASS SERVICE join forces to promote the industry standard for advanced model based expert control systems for furnaces, working ends and forehearths: ES III™.

SORG customers will no longer have to work with multiple parties to set up communications between their underlying control systems and ES III™, but benefit from a convenient one-stop-shop solution instead.



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Benefits

In example, the benefits using ES III™ for a typical 300 tpd regenerative end-port furnace melting container glass (and not taking less supervision, furnace life extension, reduced corrosion and wear as well as emission reduction into account) could be:

Lower deviation ⇒ lower setpoints

Assuming a lower glass temperature at the throat of 20°C:

-104 kW (or -14 Nm³/h of natural gas)

Less rejects

Assuming a 1% less rejection rate:

-84 kW (or -13 Nm³/h of natural gas)

Substitution

Assuming electricity can be substituted:

-200 kW and +27 Nm³/h of natural gas

The annual savings using ES III™ are depending on

- the customer needs and choice how to use ES III™,
- the current process parameters,
- the specific energy costs and
- the local conditions.

The today's installation show a positive IRR and payback respectively.

At a glance

- + Advanced / automatic control
- + Applicable for furnace, working end + forehearth
- + Lower cost of melting, refining and conditioning
- + Lower emissions
- + Less PCS supervision needed
- + Prolonging furnace life
- + Reduced corrosion and wear
- + SORG® has the experts

SORG CERTIFIED QUALITY COMPONENTS

are :

- low maintenance
- operator friendly
- reliable
- accurate



That's why we put OUR name on them.

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