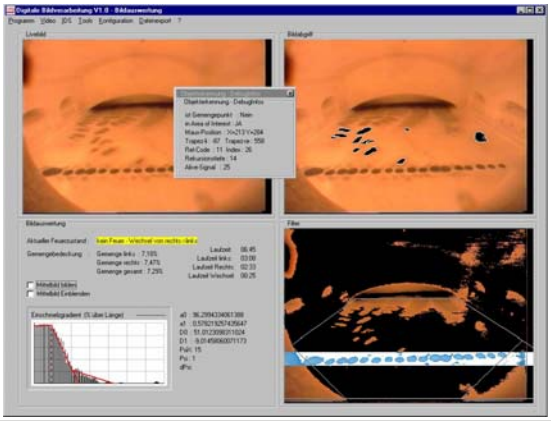
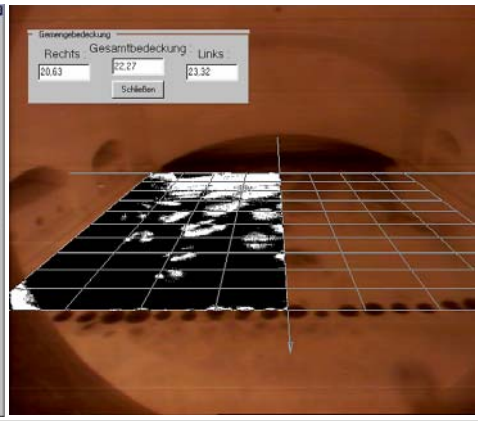
„SIGLAS ® Optical Melt Control“





Industry sector
Glass

Float Glas

Hollow glass

Furnace

Control
energy transfer

Solution by
STG Cottbus

Application:

OMC Optical Melting Control : Furnace video processing controls stable energy transfer to glass and batch area

Improved energy transfer from flame to glass and batch is the key of energy saving DeNOx technology and for increase of glass melting capacity. Therefore Optical Melting Control is an instrument to control the real energy input into glass bath.

Optical Melting Control (OMC) uses the video signal of a standard furnace video camera. Computerised video picture processing provides reproducible data about
-batch covered area
-Melting process evaluation
-Stability of hot spot and recirculation glass flow
-Bubbling
-optimum flame position

OMC controls the energy transfer in the furnace and the stability of technological conditions for glass quality, based on the traces of energy transfer on the surface of glass bath. Using OMC the control systems „learns“ to identify any reduced energy transfer, which may be caused by foam or modified redox status of glass melt, in order to provide a adequate control response in time.

As a Profibus client – like an intelligent transmitter – OMC Computer identifies unmolten batch pattern on glass surface , using digital filters. Operator gets reproducable data about batch pattern and about the speed of melting and about the melting gradient.

SIMATIC PCS 7 process control system – getting these data by video picture scanning at each reversal procedure – takes them together with energy input and temperatures as a basic of new control strategy, focused on glass makers‘ real target: melting good glass.

Since long time furnace temperature control is known as a sensitive and critical task, especially for regenerative glass tank furnaces.

OMC system to control energy input into glass tank furnace is expected to be much more insensitive against foam, modified emissive or any other deterioration of heat transfer in the furnace.

For the melting of high quality glasses , melting gradient analysis provides additional data about stability of quality relevant parameters like flame position, flame temperature maximum, hot spot position or bubbling.

Optical Melting Control is an important element of Energy saving DeNOx technology, which allows to keep NOx emission in a range of 400 to 1000 Nm³/h, just according to actual type of fuel and furnace, combined with an energy saving in a range of 2% to 8%.

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GLASS