Optimum Design Concept for Energy Efficient Furnace

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AGC Ceramics Co., Ltd.
1. Company Profile

2. Design Concept of Eco Lead Furnace
   - Double Pass Regenerator
   - Thermal Insulation Ceramics Material

3. Conclusions
1. Company Profile

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3. Conclusions
“AGC Inc.” changed the name from “Asahi Glass” on this July.

Glass (Building, Automobile)  Electronics  Chemicals  Ceramics

Glass manufacturing starts began in 1907.

AGC CERAMICS CO., LTD.
A 100% subsidiary of AGC
but esteem in business with
Independence and Confidentiality
Ceramics manufacturing began in 1916.
Our Solutions for Glass Melting

- High quality glass
- Low energy consumption
- High reliability and long life

Approach

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Various Types of Glass Furnace

- Container glass
- Tableware glass
- Sodium silicate
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Energy Saving Unit Consumption of container glass (without Boosting)

- Side Port
- End Port
- Eco Lead

Glass quality 200 – 400 seeds in 1 kg glass
Design concept of Eco Lead Furnace

◆ Energy saving technology

- Well designed Double Pass Regenerator (Hyper Regenerator System)
- Application of Thermal insulation material (THERMOTECT WALL™)

Low energy consumption & Long life
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Hyper Regenerator System

Our double pass regenerator enable much higher heat recovery efficiency.

High efficiency
Hyper Regenerator System

Condensation area designed to close to rider arch.

Easy to clean dust

Sodium sulfate condensation
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Thermal Insulating Ceramics Materials

- High thermal insulation properties
- Human body-friendly (Non RCF)
- Low aging degradation

In 2015, It got the grand prize for excellent energy solution in Japan.
Application for Glass Furnace

- Port
- REG wall
- Tuck Stone
- Crown
- Melter wall
Application for Tuck Stone

Tuck Stone IW

AZS + Thermal insulation hybrid structure
Application for Tuck Stone

Normal Tuck Stone

- Actual: 213°C
- Sim: 216°C
- Actual: 256°C
- Sim: 238°C

Tuck Stone IW

- Actual: 166°C
- Sim: 169°C
- Actual: 1010°C
- Sim: 832°C

Reduce 46% heat emission of the area
(Decrease 1.8% energy consumption, 41,000 USD oil in 1 year
@Japanese 100 TPD End Port furnace)
Conclusions

- Eco Lead Furnace achieve 5% energy saving compared with the conventional end-port.
- Hyper Regenerator System enable high heat recovery efficiency and easy dust cleaning.
- Insulation design with using THERMOTECT WALL realize epoch-making energy savings through low degradation of performance.
Thank you!

Your Dreams, Our Challenge