DREAM Technology Case Study: Heat Pipe Solutions

Project:
Design for Resource and Energy efficiency in cerAMic kilns

The DREAM project (Design for Resource and Energy efficiency in cerAMic kilns) aims to design, develop and demonstrate a radically improved architecture for ceramic industrial kilns, characterised by optimised energy consumption, reduced emissions, and lower operating costs compared to currently available technological solutions.

DREAM website

Horizon 2020 - Research&Innovation Programme under Grant Agreement n° 723641

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Sector:

Cement

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Ceramics

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Chemicals

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Non-ferrous metails

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Steel

Summary:

Heat-pipe technology is fostering a new generation of low-energy, low-emissions kilns. Heat pipes transfer waste heat from from the cooling stage, to be re-used for the drier, supplied to the kiln's combustion system as combustion air or as a heat source for factory heating. Heat pipe technology is money-saving, clean and with lower carbon emissions from burning less fossil fuel. Therefore, it reduces the overall carbon footprint of the factory. As a result, it generates profit, giving the end-users a competitive advantage, which allows them to increase their profit margins. It also puts the end-users in a stronger position in the industry and enables them to generate higher level of growth within the market.

Features

- Low impact on existing processes. It can be designed as a module to add to existing machines with minimal changes;
- Clean air (not contamined) thanks to the way the heat pipe works;
- Decrease of carbon footprint of the plant.

Applications outside the project

- Need of heat exchange to balance and reduce the energy consumption in production plant;
- Furnaces/kilns retrofitting;
- Process air for driers.

Theme:
Industrial furnace design - SPIRE04-2016
Keywords:
Kiln, furnace, energy efficiency, retrofitting, heat exchange, heat pipe
Type:
Case study
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Resources

Link:
Experimental investigation of a radiative heat pipe for waste heat recovery in a ceramics kiln
Energy efficiency enhancement and waste heat recovery by means of the heat pipe technology

Scientific papers

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