

Portuguese Solution High Density Thermal Channels



Article Overview

Portugal has developed high-density thermal solutions both in building construction and advanced cooling systems, optimizing heat transfer and energy efficiency.

High Thermal Performance Masonry Systems in Portugal

Recent Portuguese research has focused on high thermal performance masonry systems for building construction. These systems use light density clay units and lightweight concrete units to construct large single-leaf external walls without additional thermal insulation. Finite Element Method (FEM) analysis has been applied to optimize both thermal and mechanical performance, ensuring effective heat retention and structural stability. Experimental characterization confirmed the thermal efficiency, while productivity and ergonomics were considered to reduce construction costs and improve feasibility. These solutions are particularly relevant for energy-efficient residential and commercial buildings in Portugal.

High-Density Thermal Channels for Electronics

In the electronics sector, high-density thermal channels are critical for managing heat in high-power devices. Portuguese and international research has explored embedded microchannel cooling solutions, integrating micropillar arrays near the junction region of semiconductor substrates. This design enhances forced convection and flow boiling, maintaining device temperatures at safe levels even under extreme heat fluxes exceeding 1200 W/cm^2 . Fabrication techniques include deep reactive io...

Article Content

Jan 11, 2026

Decarbonization potential of integrating industrial excess heat in a ...

Both solutions successfully met heating baseload of 2,64MWth, a system decarbonisation potential of 10.8%. The

Nov 07, 2025

Phase Change Materials as a solution to improve energy efficiency in ...

Density changes produced by pressure increments during melting of a spherically confined phase-change material

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A PORTUGALISOL investe em inovações tecnológicas e em colaboradores altamente capacitados para

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Manufatura de Soluções Térmicas | Trocadores de Calor e Radi...

A Thermal Solutions Manufacturing (TSM) especializa-se no projeto, fabricação e distribuição de radiadores, trocadores de calor e

Jun 14, 2026

Phase Change Materials as a solution to improve energy efficiency in ...

One solution to reduce these consumptions is the implementation of technologies and Phase Change Materials (PCMs) for Thermal

Jun 13, 2026

Design optimization of conformal cooling channels for injection molds ...

Conformal cooling channels outperformed traditional channels by 62.9% and improved mold surface thermal uniformity. The

Dec 08, 2025

(PDF) Passive strategies used in Southern Portugal ...

An analysis was performed on the thermal insulation performance of rammed-earth buildings in an extremely high

Sep 28, 2025

Beyond TIM: Microchannel Architectures for Advanced Thermal

Through this analysis, we aim to illustrate how these advanced techniques can enable next-generation 3D-stacked

Aug 06, 2025

Design and Fabrication of Embedded Microchannel Cooling Solutions

The rapid development of high-power-density semiconductor devices has rendered conventional thermal management

Dec 20, 2025

TROMBE WALL THERMAL PERFORMANCE FOR A MODULAR

ABSTRACT Trombe wall and high performance glazing are the façade system improvements used in this research. This paper

May 03, 2026

Construction of 3D BN network with high-density thermal conductive ...

Three-dimensional BN networks with high-density thermal conductive paths were designed as the heat transfer

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ARSOPI-THERMAL, EQUIPAMENTOS TÉRMICOS S.A.

ARSOPI-THERMAL dedicates its activity to the design, manufacturing, and technical support of Plate Heat Exchangers. Our range of

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Topology optimization of porous solid structures for heat transfer and ...

To enhance the heat transfer, fins can be installed around the heat transfer fluid channel, and the high thermal

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Anti-inflammatory potential of Portuguese thermal waters

In the present study, we aimed to investigate the anti-inflammatory properties of 14 TW pertaining to thermal centers

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Mapping the energy performance gap of dwelling stock at high

This study aims to estimate and analyze the EP gap of the occupied main residence Portuguese residential dwelling

Nov 28, 2025

Assessment of the Portuguese building thermal code: Newly revised ...

A newly revised methodology for Portuguese building thermal code. The use of the gain utilization factor as an

Jan 22, 2026

High-Channel Density Digital IO Modules | Arrow

Conclusion When designing high-density digital input or output modules, discrete solutions become impractical once

Mar 25, 2026

(PDF) High Thermal Transport Channel Construction within Flexible ...

For that reason, high thermal transport channels were manufactured by direct freezing method, and further weld the

Dec 08, 2025

Vertiv High Density Cooling Solutions

The unit operates without facilities water and provides a chilled water secondary circuit, allowing you to tap into the benefits of water

Jun 23, 2026

Demystifying Thermal Channels: Driving a Channel both Forwards

In other words, a heat-sensor-containing channel may stay heat-sensitive at high temperatures and become cold-sensitive at low

Mar 08, 2026

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PORTUGALISOL is a Portuguese reference in the development and implementation of industrial insulation and thermal engineering

Jan 22, 2026

Volume 1, A – 77: Recent Portuguese developments of high thermal ...

The concerns with masonry building envelope performance, particularly thermal efficiency, are causing important changes to

Sep 14, 2025

Multi-Objective Optimization of Solar Thermal Systems Applied to ...

The main objective of this study is the thermo-economic optimization of solar thermal systems for residential building

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Design optimization of conformal cooling channels for injection molds ...

Direct metal printings process window and duration are drawbacks. High-density injection molds prevent cooling fluid leakage. A

May 17, 2026

A Review of Thermal Management Techniques Adopted for High

This review has presented a comprehensive analysis of thermal management strategies for high-power-density GaN

Dec 05, 2025

ISONOVUS

A ISONOVUS é uma empresa especializada em Soluções Térmicas para a indústria e uma referência no mercado ao nível da

Feb 07, 2026

Numerical optimization of conformal cooling channels for thermal ...

Highlights • Analyzing conformal cooling channels numerically to optimize thermal performance and stress in high

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