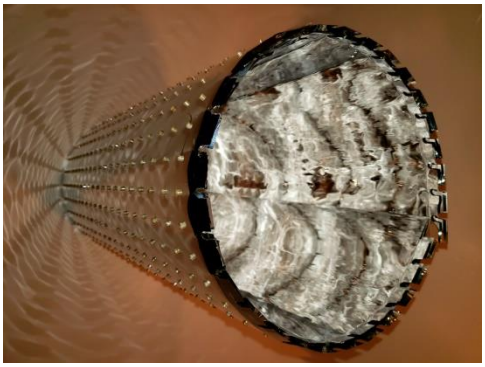
QUEST THERMAL GROUP
Innovative thermal solutions

Commercial Superinsulation
PRODUCT SHEET

High Performance Insulation (HPI) is a superinsulation developed to significantly reduce heat leak for commercial applications.

High Performance Insulation (HPI) uses proprietary Discrete Spacer Technology™, where low thermal conductivity polymer spacers separate radiant barriers providing very low heat flux. HPI can be designed as thin panels for residential appliance and commercial cold supply chain insulation applications. A 0.6cm thick panel has up to R-150 thermal performance, a remarkable 20-fold reduction in heat leak over foam insulation. Thin HPI panels in appliance doors and walls add valuable interior space, as well as dramatically reduce energy use. Working with our customers, Quest provides engineering design, system analysis, and fabrication of high performance HPI.



DIFFERENTIATORS

- HPI is available in an engineered thermal solution.
- Typical HPI configurations are 3 to 5 layers, in thin 5 – 9 mm panels.
- HPI offers up to R-150 (0.001 W/m-K) performance.
- HPI can have 20-fold lower heat flux than R-7 foam insulation.
- HPI is a vacuum insulation; it is installed in sealed case walls or in sealed panels.

APPLICATIONS

Commercial

- Commercial freezers and walk-ins
- Cold Food Supply chain uses
- Cold Distribution Centers
- Residential & Industrial appliances
- Hot or cold transport cases
- Portable coolers
- Refrigerators/freezers
- LNG storage & transport
- LH_2 infrastructure

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HPI THERMAL PERFORMANCE

Quest Thermal Group developed HPI, a new commercial superinsulation, based on technology developed for NASA and spaceflight, has 20-fold lower heat leak, a with the potential for using up to 90% less energy, with ¼" thin walls and doors adding up to 40% more usable space in appliances.
HPI can provide up to R-150, a high thermal resistance value, and an extremely low thermal conductivity of < 0.001 W/m-k.

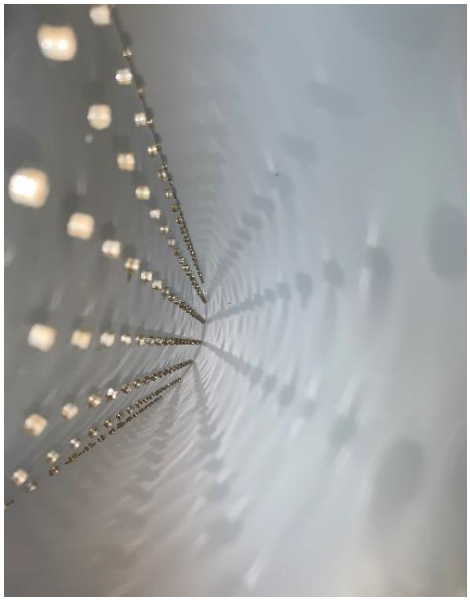
HPI thermal performance vs foam insulation				
Insulation system	Layers	Heat Leak, W/m^2	R-value	Conductivity, W/m-K
HPI, 0.2"	3	2.7	150	0.0008
HPI, 0.3"	5	1.6	150	0.0008
HPI, 0.6"	10	0.8	150	0.0008
Foam, 1.9"		8.6	7	0.022
Foam, 6"		2.7	7	0.022

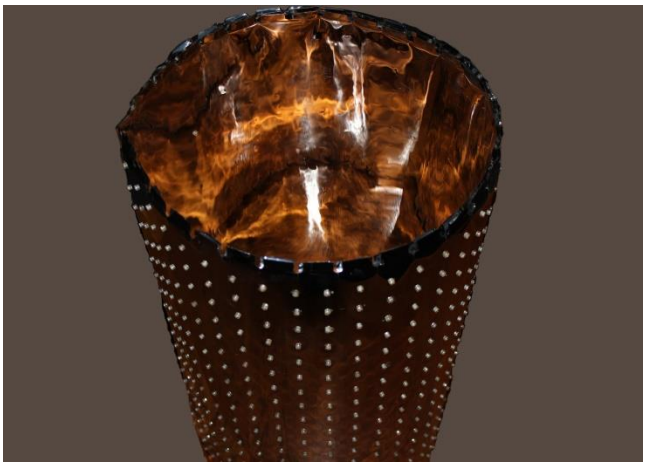
HPI applications and benefits

HPI high performing superinsulation could reduce energy use in fridges, freezers, water heaters and ovens, insulated containers and equipment, commercial food cold storage chain with refrigerated containers, refrigerated trucks or shipping containers, large cold food storage and distribution centers, insulated containers for food or medical use, insulated LNG tanks and tankers, LNG or LH_2 fueled aircraft, vehicles and carriers, LH_2 infrastructure, and industrial hot/cold processes (to name a few applications). Quest Thermal's novel superinsulation enables highly energy efficient refrigeration and heating appliances, reducing energy costs, reducing carbon emissions and protecting our environment.

HPI, a thin and high performance thermal management solution, potentially meets manufacturers' wish for a thin but effective insulation.

Working closely with your team, Quest Thermal can design, do system analysis, and fabricate and test custom thermal solutions.





For more information about our products, visit our website: questthermal.com

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