

U-Vacua™ Vacuum Insulation Panels

Advanced Thermal Insulation for Buildings.

Vacuum Insulation Panels, or VIPs, are high R-Value, rigid non-structural thermal insulation panels. They provide high performance thermal insulation in a thin, light weight design. Great for areas with limited space that require high R-Value insulation or to meet energy standards without increasing wall, roof or floor thickness. Whether used stand alone or in combination with other materials, or as part of a composite panel, VIPs reliably deliver energy savings.

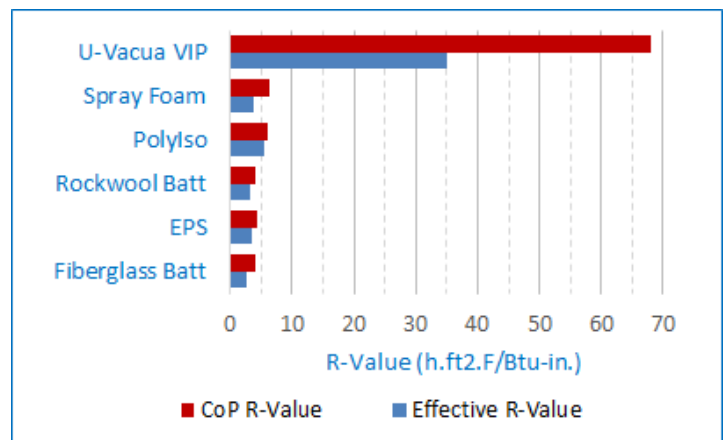
Features:

- Thermal conductivity of 0.002 W/mK, which equates to a Center-of-Panel R-Value of over R-60 per inch
- Class A Fire and Smoke rating for Building Products
- Made from non-toxic materials and over 70% recycled content
- Mold, fungi and rodent resistant
- Adhesive Tapes or Sprays recommended for installation

Materials of VIPs:

U-Vacua™ VIPs consist of a unique fiberglass core encased in a laminate film made up of several layers that includes nylon, aluminum, and a laminate layer. An adsorbent is positioned between the fiber glass material and the exterior film to capture moisture molecules and any gases. Together, the adsorbent and outer film maintain the integrity of the vacuum over many years, ensuring a reliably long product life.

U-Vacua™ VIP Center of Panel R-Value and Effective R-Value by Insulation Type (per inch)



Center of panel R-Values determined using ASTM C1667. The Effective R-Value for Wall Assemblies determined using ASTM C 1363, which takes into account edge effects in a Wall Assembly.

BUILDING APPLICATIONS INCLUDE –Commercial + Residential Roofs, Embedded or Composite Panels (IMPs, SIPs, ...), Insulated Concrete, Walls (Interior + Exterior), Spandrel glass, Ceilings, Floors, Attics, Basement, Crawlspace, Rim joists.

SPECIFICATIONS

R-Value (h.ft2.F/Btu) by Panel Thickness				
Panel Thickness				
inches	0.47	0.59	0.79	0.94
mm	12	15	20	24
R-Value (h.ft2.F/Btu)				
R-Value CoP ¹	34	45	56	66
Effective R-Value ² (Wall Assembly)	22	25	30	35

General Specifications	
Thermal Conductivity W/mK ASTM C1667	0.002
Flame Spread	10
Smoke Development ASTM E84	15
Compressive Resistance ASTM C165	14 psi @ 24 mm 10 psi @ 15 mm
Density	250 kg/m ³ +38kg/m ³ @ Core
Tensile Strength ASTM D882	0.85 kN @ 25x120x12mm (WxLxT)
Flexural Strength	1.2 Mpa @ 25x120x12 mm (WxLxT)
Recommended Use Temp. Range	-40°C to 60°C / -40°F to 140°F
Max. Use Temperature Range	-70°C to 100°C / -94°F to 212°F

Notes:

- Center of Panel R-Value determined per ASTM C1667.
- Effective R-Value reported for a wall assembly per ASTM C1363. Panel dimensions, configuration, and environmental temperatures effect R-Value of a VIP panel. Estimated useful life varies by Use temperatures, panel size and specific configuration.

Green Building: U-Vacua™ VIPs avoid toxic materials, such as those on the Living Building Challenge Red List, and are made from 70% or more recycled material. For high efficiency buildings, VIPs deliver superior thermal insulation in a very thin panel thickness.

Compliance and Standards: U-Vacua™ vacuum insulation panels have been tested to ASTM C1484, ASTM E84, ASTM C165, ASTM C1667, ASTM C1363. U-Vacua™ VIPs are manufactured in facilities that have received and maintain the following certifications: OHSAS 18001:2007 Occupational Health & Safety Management Systems; ISO 9001:2015 Quality Management Systems; ISO 14001:2015 Environmental Management Systems.

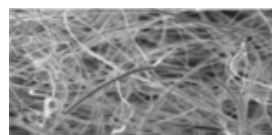
TECHNOLOGY



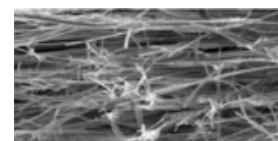
Vacuum insulation Panels do more with less. About 90% of a VIP's performance is a result of the inner vacuum. In a vacuum, heat can not travel through the air by conduction or convection. This limited ability for heat to travel in the vacuum is what gives vacuum insulation panels such a high thermal insulating performance and R-value.

Fiber Layer Arrangement Technology (FLAT) developed by Panasonic, minimizes the touch points of the fibers to the panel sides, which reduces thermal conductivity along the fibers by as much as 60%.

Standard Orientation



Glass Fibers Aligned



Configurations and Service Life: U-Vacua™ vacuum insulation panels come in a variety of configurations specific to building design requirements, driven largely by desired thermal performance over a specified time period. At 60 years, standard U-Vacua™ VIP panels are designed to have a Center of Panel R-Value of 12 or higher. Larger panel sizes typically have a longer Service Life than smaller panels of the same thickness. Superior grade U-Vacua™ VIPs can be configured to maintain R-Values significantly longer than the standard VIP panels.

Design Considerations: VIPs cannot be handled or installed in the same manner as traditional insulation products. VIPs can not be punctured in any way - without the vacuum, the thermal insulating performance, or R-Value, is similar to fiberglass batt, or about R-5 per inch. Specifically, VIPs cannot be cut, sawed, nailed, screwed, stapled, exposed to metal shavings, etc. Adhesive tapes or sprays designed for building construction use are acceptable ways to implement VIPs, as well as protecting the panels with additional layers to avoid puncture during installation.



Intertek

Certified to
ASTM C1484, ASTM E84

VACUUM INSULATION