

Cryogenic Superinsulation Product

PolaPair® is a cryogenic superinsulation **subsystem** that is ideal for basic single layer insulation and can be wrapped or stacked in layers to create a Multi-Layer Insulation (MLI) system. PolaPair® is constructed of a single reflector layer and single low-conducting spacer combined into one roll.

Features:

- Ultrathin polyester film reflector layer to provide efficient thermal performance with minimal weight and stiffness.
- Reflector layer is paired with a 5.0 mil (127 µm) thick spunbond polyester spacer that provides a uniform low conducting barrier.
- PolaPair® is provided in a standard material width of 56 inches and in standard roll lengths of 100, 200, and 500 linear feet. Additional widths up to 86 inches available by special order.
- Additional film treatments:
 - Perforations - offer the ability to decrease vacuum pump down time.
 - Crinkling and embossing - offer a lower layer density and less layer conduction when properly installed.
- All layers are 100% polyester without binder to reduce outgassing contaminants.



Product Number*	Aluminum Coating	Perforated
PP001-56-XXX	Both Sides	No
PP002-56-XXX	Both Sides	Yes
PP003-56-XXX	One Side	No
PP004-56-XXX	One Side	Yes

*XXX denotes length of roll. Can be either 100, 200, or 500 Linear Feet

Material Properties

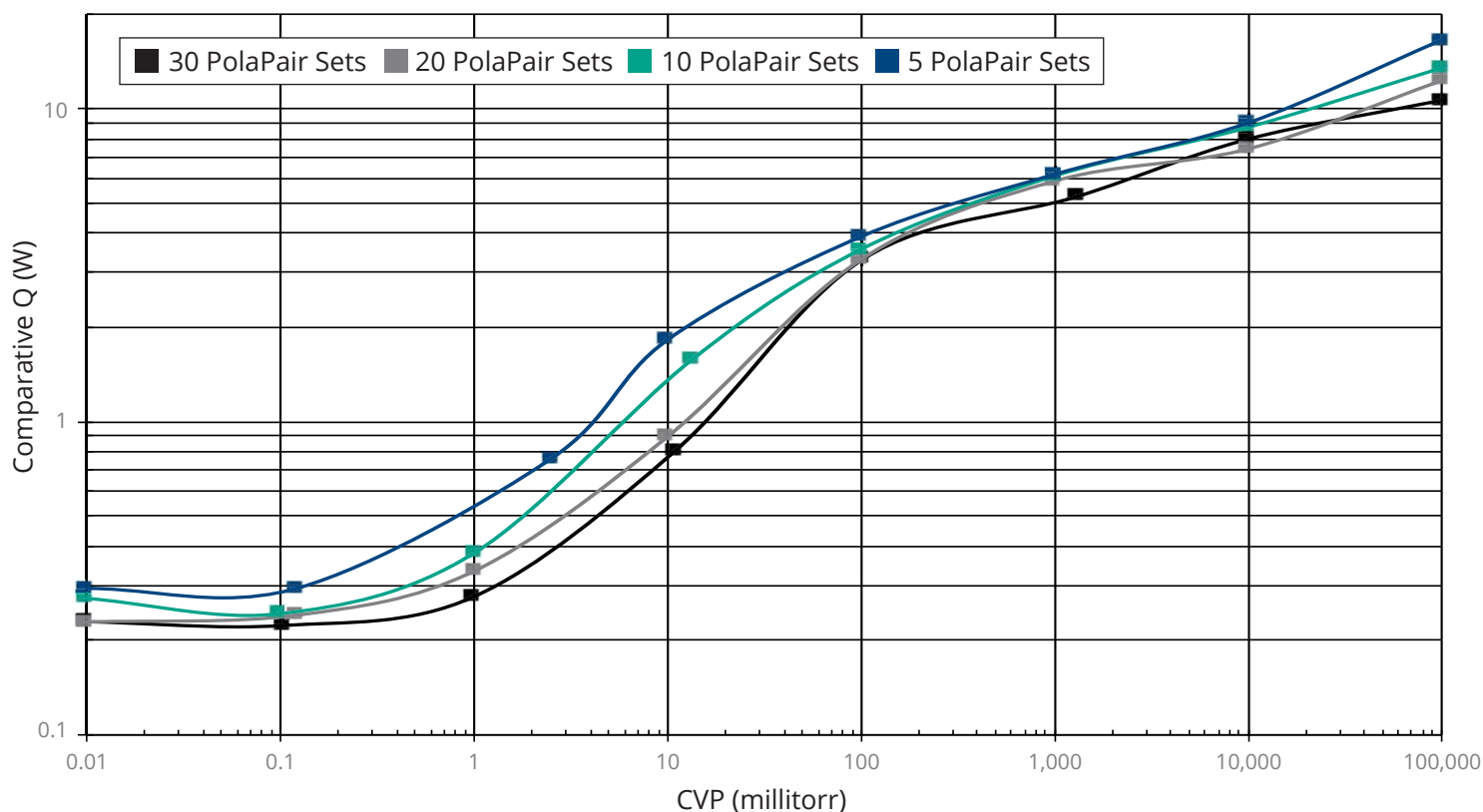
Operating Temperature, °F(°C)	-452 (-269) to +250 (121)
Areal Density per layer pair, kg/m ²	0.034
Thickness, mm	0.14

Applications

Cryostats
Storage Dewars
Cryogenic Cabling
Vacuum-Jacketed Piping
Large-Scale Cryogenic
Storage Tanks
Quantum Computers
MRI Machines

Thermal Performance

Comparative Thermal Power (Watts) to Cold Vacuum Pressure (CVP)
(300K Warm Boundary Temp, 77K Cold Boundary Temp)



Usage

- With lower cost and easier handling than traditional MLI reflector/netting spacer combinations, PolaPair® offers more efficient installation than blankets made with loose-weave netting.
- PolaPair® offers improved thermal performance over blankets that don't use a spacer material.
- Layers of PolaPair® can be stacked to create an MLI layup that can be used to make discrete parts.
- PolaPair® can be slit to a variety of widths for use in spiral wrapping cables/pipes.

All product data is nominal and does not represent a specification. We make no warranty, expressed or implied, concerning actual use or results.

Contact AFM for current availability, pricing, and custom preparation | mli@aerospacefab.com | 651.463.8500