Insulon Vacuum Jacketed Hose

for Industrial Gas Suppliers

1. Cryogenic applications
    a. Safer cryogenic dispensing
    b. More efficient cryogenic transfer
    c. Unique benefits for hydrogen
2. Product overview
3. Features and benefits

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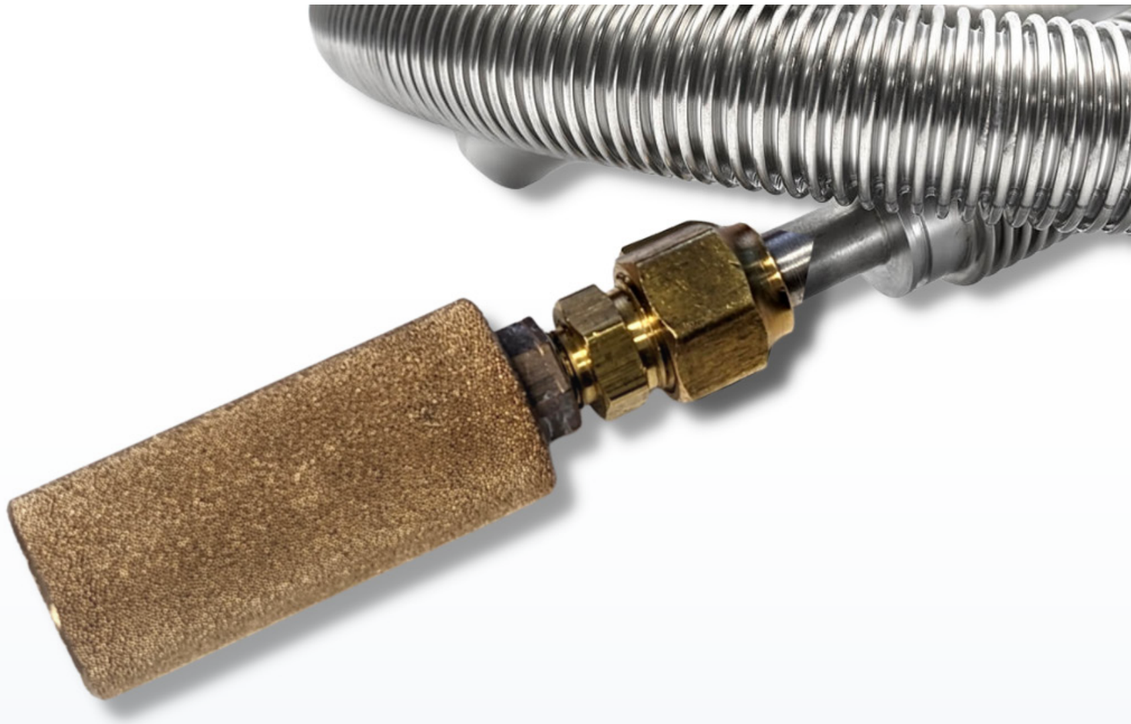
Safer cryogenic dispensing
with Insulon Safe Dispensing Hose

- Safer for cryogenic dispensing than non-insulated cryogenic hoses
- High performance thermal insulation with Insulon vacuum technology
- Drastically reduce frost and condensation
- Lightweight, ergonomic design; Smaller outer diameter than other vacuum jacketed hoses
- Zero pump-down maintenance
- Ideal for cryogenic dispensing applications including liquid nitrogen, oxygen, hydrogen, argon, and carbon dioxide.



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CONCEPT Group INSULON TECHNOLOGY

Cryogenic, non-insulated hose

Insulon Safe Dispensing Hose

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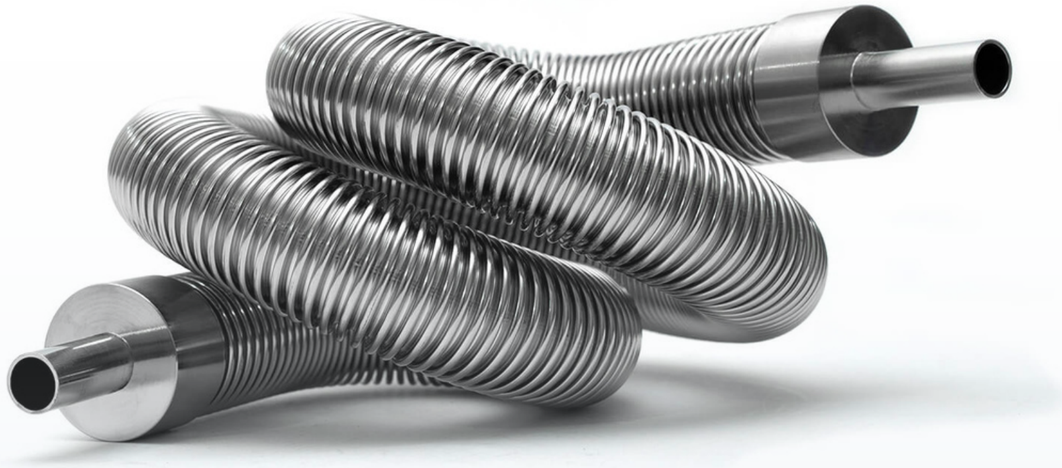
Insulon Vacuum Jacketed Hose

Benefits for cryogenic fluid transfer

- Improve safety by maintaining safer surface temperatures and reducing condensation and frost
- Minimize boil-off material losses
- Deliver better quality cryogens by maintaining higher liquid-to-gas ratio
- Compact design; Typically smaller outer diameter than other vacuum jacketed hoses
- Flexibility with low springback to reduce pressure on joints
- Zero pump-down maintenance required
- Unique benefits for liquid hydrogen applications



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Insulon Vacuum Jacketed Hose

Unique benefits for hydrogen

- Fully annealed, austenitic stainless steel to combat effects of hydrogen embrittlement
- Low non-volatile residue (NVR) on surfaces
- ASTM G93 cleanliness up to Level A upon request
- Low pressure and high pressure hoses available as standard product
- Ultra-high pressure hoses available by request for cryo-compressed hydrogen transfer

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Insulon Vacuum Jacketed Hose

Product Overview

- Vacuum jacketed hoses engineered with Insulon Technology for fluid transfer applications from -270 to 900°C (-454 to 1652°F).
- Proprietary, advanced vacuum insulation technology
  - Zero pump-down maintenance
  - More compact, sleeker profile
  - No reliance on getters in the vacuum annulus
  - Hyper deep vacuum space with better resistance to thermal cycling
- Option to include proprietary, high-density multi-layer insulation (MLI).

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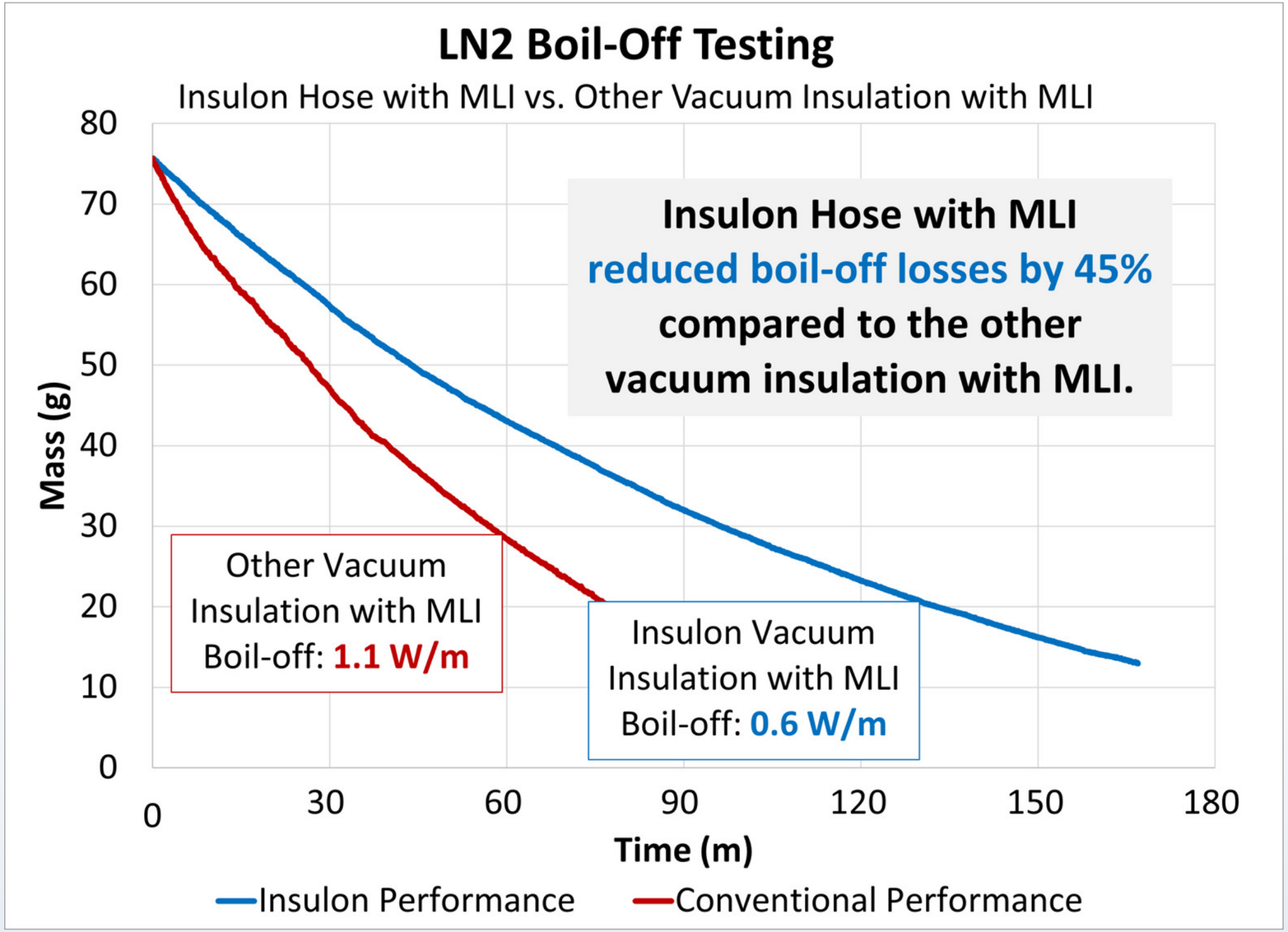
Download the product catalog for technical specifications

Minimize boil-off material losses

Setup: Two 1/2" ID x 6' L vacuum jacketed hoses are bent 180° into a "U" configuration. Both ends of each hose assembly are fixtured onto a load-cell. The hoses are filled with LN2. A DAQ system pulls data from both load cells to plot the mass loss of LN2 with respect to time.



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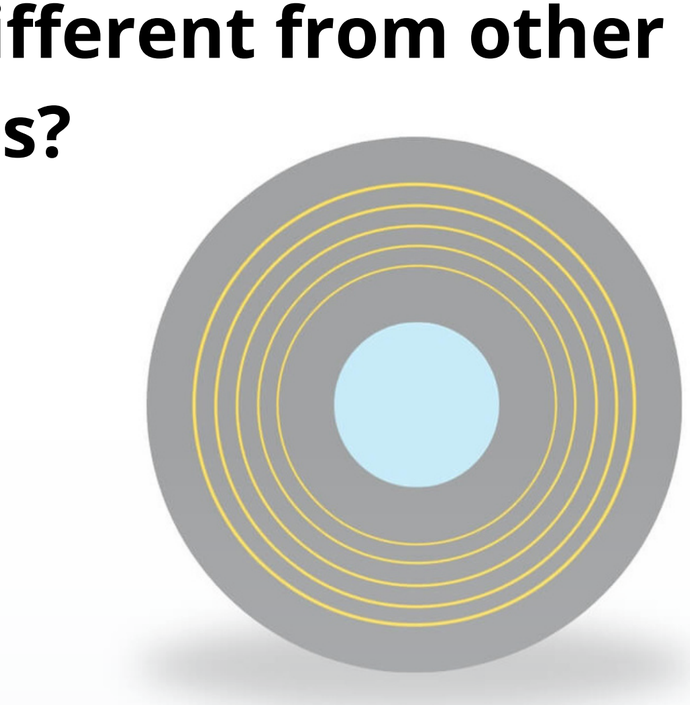
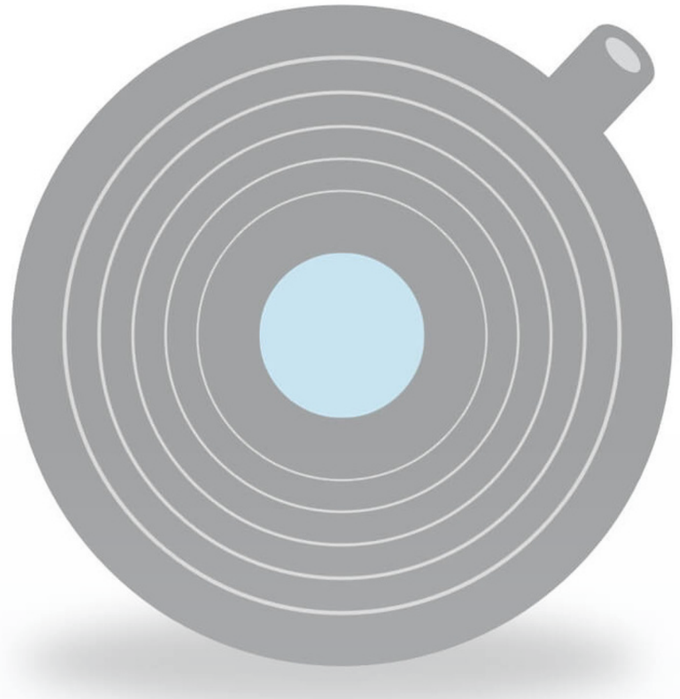
How is Insulon Hose different from other vacuum jacketed hoses?

- Zero pump-down maintenance
- More compact, sleeker profile
- No reliance on getters in the vacuum annulus
- Hyper deep vacuum space with better resistance to thermal cycling
- Engineered for fluid transfer applications from -270 to 900C (-454 to 1652F)



Insulon Vacuum Jacketed Hoses



Other vacuum jacketed hoses

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Thank You

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