AMS®

All Metal Shield

Multilayer Heat Shield

Fully Recyclable IR Radiation Shield with Acoustic Benefits

AMS® is a patented Lydech product which employs between three and five thin, parallel and low emissivity metallic layers to markedly cut the contribution of infrared radiation heat flux in high temperature applications. The metallic layers, commonly foils of aluminum or stainless steel, are separated by an expanded metal mesh to reduce interlayer contact and augment the thermal resistance of the composite.

Materials - Metallic Layer

Aluminum - Foil Layers and Carrier

- 0.02 to 2.5 mm
- Flat or Embossed
- 1000, 3000 and 5000 Series Alloys
- Lightweight
- Excellent formability
- Operating temperature < 300 °C

Aluminized Steel - Carrier Layer

- Used as a support for Aluminum Foil Layers
- 0.25 to 1.0 mm
- Flat or Embossed
- Various coating weights and draw quality steels
- High strength materials
- Operating Temperature < 500 °C

Stainless Steel - Foil Layers and Carrier

- 0.1 to 2.5 mm
- Flat or Embossed
- Ferritic and Austenitic grades selected as a function of operating temperature and corrosion requirements
- High strength and high temperature applications
- Operating Temperature < 1000 °C

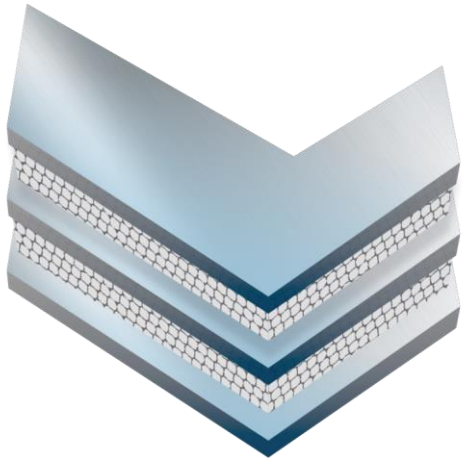
Thermal Performance

- Excellent performance in thermal environments heavily dominated by IR radiation
- High lateral thermal conductivity to spread heat away from hot zones

Acoustical Performance

- The thin foil layers and alternating air gaps provide marked noise absorption
- The use of pierced or perforated layers can further contribute to the noise reduction capacity of the composite
- High transmission loss for better acoustic isolation

Product	Foil Layers	Mesh Layers
3 Layer (below)	3	1 or 2
4 Layer	4	2 or 3
5 Layer	5	3 or 4



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Lydech

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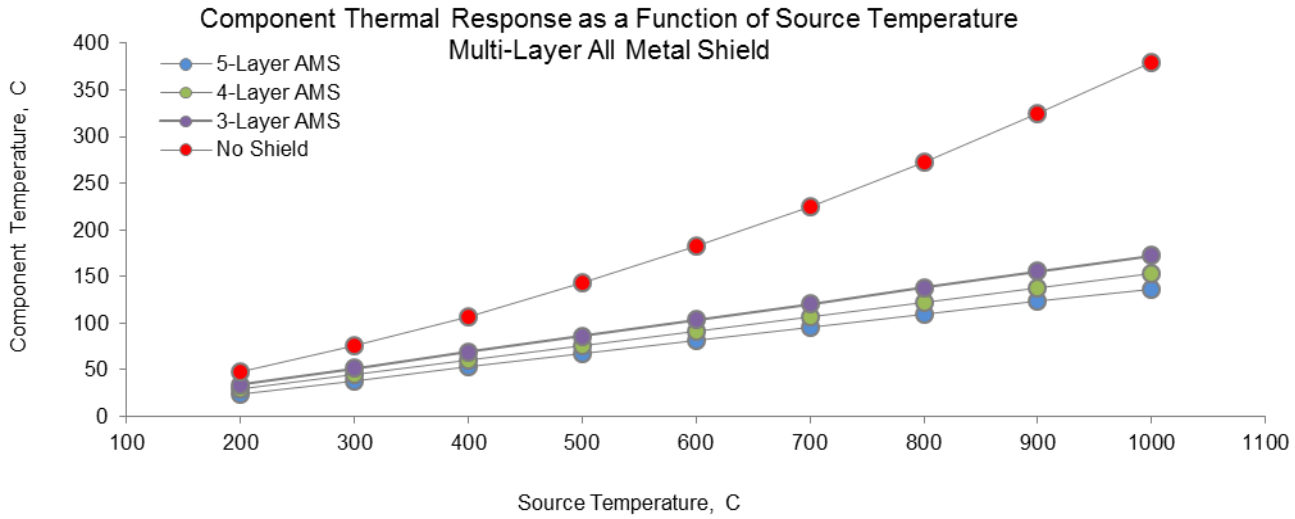

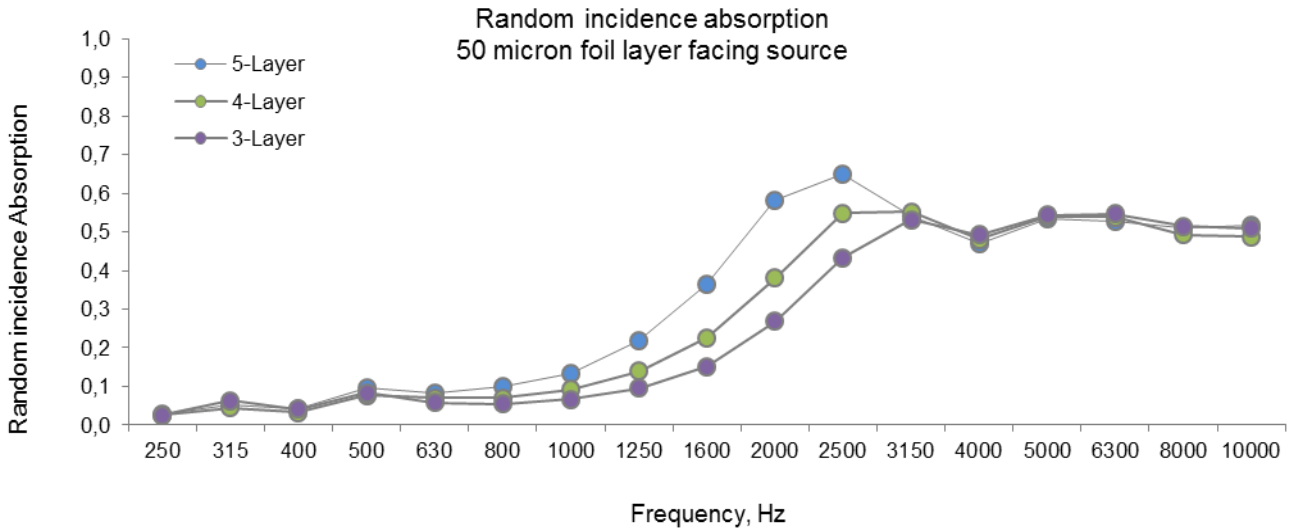

Design Considerations

- The complex is generally comprised of a thick gauge carrier - 0.5 mm alu - and 2 to 4 more foil layers on the cold side of the shield
- The metal mesh is systematically placed between the foil layers and is optional between the carrier and first foil layer if the carrier layer is embossed
- Metal gauge will not impact thermal performance and should only be considered for mechanical purposes
- Embossing facilitates the metal forming process and rigidifies the parent materials, but does not affect thermal performance
- Ambient air temperature and convection effects play a large role in component and shield temperatures
- Consider the application area and distinguish between Underbody and Underhood applications
- Distance plays a fair role in determining thermal responses, but influences temperatures only across large incremental changes
- Contact us for applications support; we are quietly keeping it cool

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