

The Zero Clearance product line is comprised of a unique set of adhesive backed thermal insulation products. The base composite is thermally efficient, strong, and resilient, and it can be tailored to a multitude of substrates and application environments. Zero Clearance consists of a high temperature, high tack adhesive that is laminated to a low conductivity fiber core. The needled fiber core is designed to withstand large axial and shear forces common in automotive underbody environments. The outer surface of the composite is a low emissivity aluminum foil, which complements the low thermal conductivity fiber core by reflecting infrared radiation energy.

The time to design and release a Zero Clearance heat shield is on the order of weeks. And tooling investment is markedly lower than stamped heat shields, giving this product excellent value in investment and time sensitive projects.

### Metallic Layer

Two aluminum foil options

- 250 micron foil for exterior applications where contact with road debris is a concern (\*Designed for SAE J400)
- 50 micron foil for exterior underbody applications with limited exposure to road debris, interior and under hood applications

### Insulation Layer

- Fiberglass core rated to 235 °C use for higher temperature applications
- Polyester core rated to 204 °C and will withstand 235 °C excursions is used for less demanding applications or where the use of glass fiber is preferably avoided

### Adhesive Layer

- Rated to 240 °C
- Excellent resistance to automotive fluids
- Adaptable to multiple substrates: Steel, Aluminum, HDPE, SMC, et al

### Thermal Performance

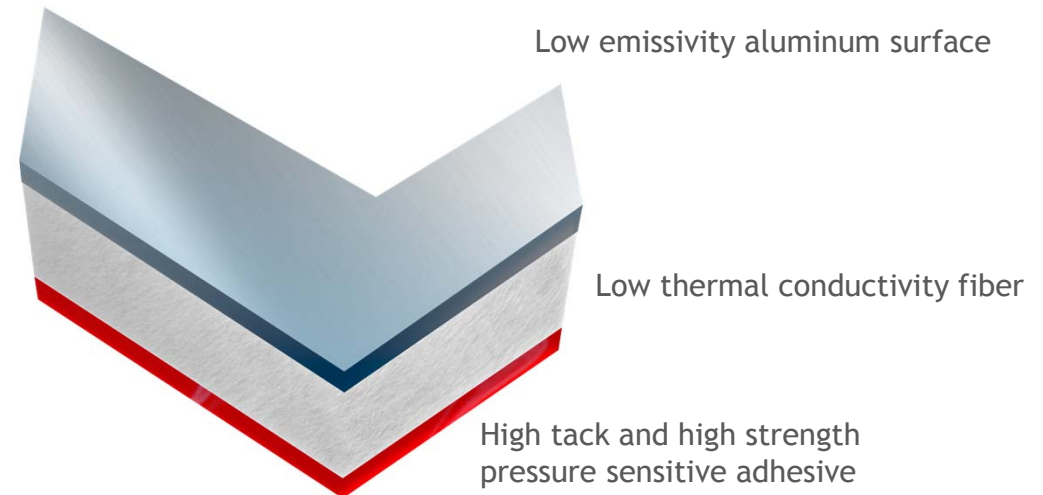
- Low emissivity surfaces for high infrared radiation environments
- High lateral thermal conductivity to spread heat
- Low vertical thermal conductivity to increase the temperature drop

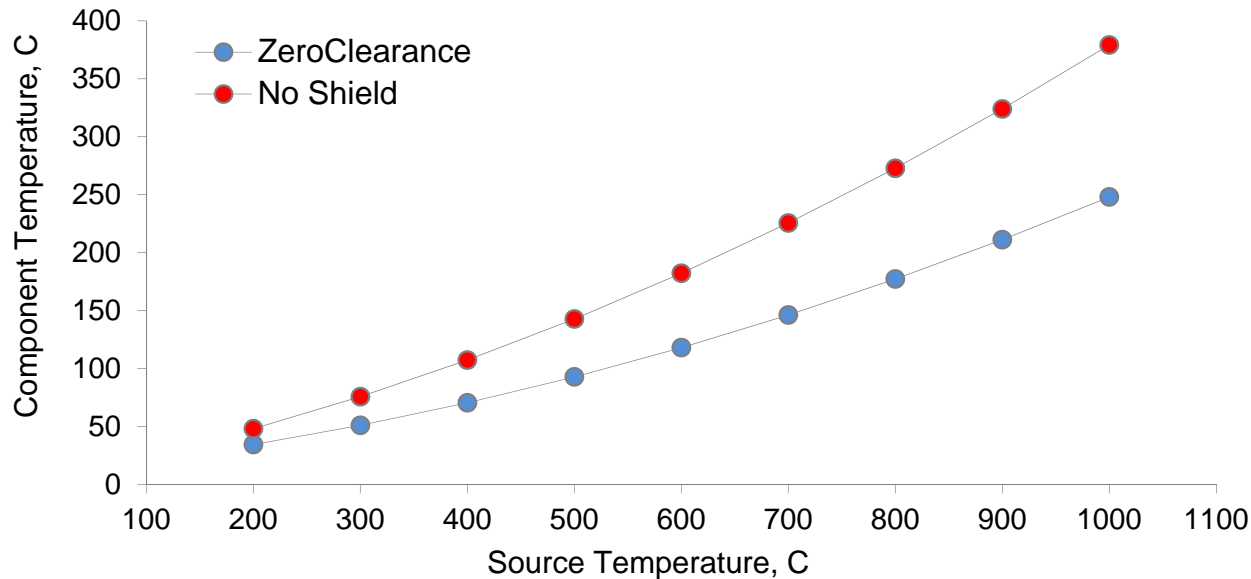
### Acoustical Performance

- Increase the damping factor of metal panels
- The foil can micro-pierced for improved noise absorption

Validation Test Results	
Test Method	Composite
FMVSS 302	SE/0
ASTM D330 F	Pass
SAE J400	Pass*

Thermal Conductivity	
@ 150°C	
Style	k, Wm/K
ZC-112-02	0.05083
ZC-312-02	0.0549





### Lydall Zeroclearance Value Proposition

- Approved at multiple OEM's
- Test and validated for underbody and underhood applications
- Resistance to automotive fluids
- Resistant to harsh environments
- Micro-pierced foils can be used to improve noise absorption
- Low tooling costs
- Short lead times
- Quick assembly
- No threaded fasteners
- The aluminum outer surface provides the first level of thermal resistance in high temperature applications and is supported by a low conductivity media that provides a marked temperature drop from the hot side of the heat shield to the substrate being protected - all in a tight package
- A polytack version is available for application with low energy surfaces like Polypropylene, HDPE and painted metal

Do not hesitate to contact us for product application support - we are quietly keeping it cool.

Core Material	Product Code	Core Thickness (in/mm)	Foil Thickness (mils/micron)	Surface Weight (g/m <sup>2</sup> )
Polyester & Fiberglass	ZC-112-02	.125/3.0	2/50	915
	ZC-112-10		10/250	1342
Polyester	ZC-312-02	.125/3.0	2/50	762
	ZC-312-10		10/250	1281
	ZC-325-02	.25/6.0	2/50	1128
	ZC-325-10		10/250	1616
Polyester & Fiberglass	ZC-612-02	.125/3.0	2/50	915
	ZC-612-10		10/250	1342
Polyester	ZC-712-02	.125/3.0	2/50	762
	ZC-712-10		10/250	1281
	ZC-725-02	.25/6.0	2/50	1128
	ZC-725-10		10/250	1616

All data and statements concerning these products may be considered as being indicative of representative properties and characteristics obtainable. We make no warranty, express or implied, concerning actual use or results because of industry specific influences.

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