

global solutions :
local support™

GAP FILLER PRODUCT LINE

It all starts with an idea...

The idea to make devices faster, sleeker, more compact & powerful, yet the challenge is to do so without over-heating.

Laird Technologies' thermally conductive gap fillers are future generation compliant cooling materials. We offer the softest, highest thermally conductive gap fillers available (in thicknesses from 0.25mm to 5.08mm).

Laird Technologies' gap fillers are soft and very compliant. They afford designers and engineers the most flexibility in dimensional tolerance. Extreme compliancy reduces stress on components while higher thermal conductivity provides the thermal performance required for next generation designs.

Thermal performance and softness is what Laird Technologies does best. Call us today to discuss your application and order free samples.

Laird Technologies' gap fillers - experience the cooler side of soft.

For sales information:

In the USA please telephone +1-888-246-9050

In Europe please telephone +44-(0)-1342-315044

In Asia please telephone +86-755-2714-116

or visit: www.lairdtech.com

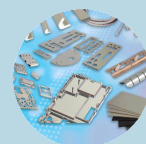
Gap Filler Product Line

Features and Benefits:

- Compliancy - Rates up to 60% deflection at 50 psi
- Thermal conductivity range from 1.0 – 6.0 W/mK
- Thicknesses from 0.25mm to 5.08mm

Applications Include:

- Notebook computers
- Handheld microprocessor devices
- Telecommunication hardware
- Semiconductor test equipment
- Servers and desktop computers
- Memory modules
- Mass storage devices
- Power conversion equipment
- Flat panel displays
- Audio & video components



| | T-pli™ 200 | T-flex™ 200VO | T-flex™ 500 | T-flex™ 600 | T-putty™ 502 | T-putty™ 504 | Test Method |
|---|--|---|--|--|--|---|-----------------------|
| Construction & Composition | Boron nitride filled silicone sheet | Ceramic filled silicone sheet | Ceramic filled silicone sheet | Boron nitride filled silicone sheet | Reinforced boron nitride filled silicone sheet | Ceramic filled dispensable silicone gel | |
| Color | Multiple Colors | Light Gray | Blue | Blue-Violet | White | Light Gray | Visual |
| Thickness Range | 0.010" (0.25mm) – 0.20" (5.08mm) | 0.020" (0.5mm) – 0.20" (5.08mm) | 0.020" (0.5mm) – 0.20" (5.08mm) | 0.020" (0.5mm) – 0.20" (5.08mm) | 0.020" (0.5mm) – 0.20" (5.08mm) | N/A | |
| Thickness Tolerance | +/- 10% | +/- 10% | +/- 10% | +/- 10% | +/- 10% | N/A | |
| Density | 1.44 g/cc | 1.73 g/cm ³ | 3.0 g/cc | 1.34 g/cc | 1.38 g/cc | 2.78 g/cc | Helium Pycnometer |
| Hardness | 70 Shore OO | 45 Shore OO | 40 Shore OO | 25 Shore OO | 05 Shore OO | N/A | ASTM D2240 |
| Tensile Strength | 35 psi | 48 psi | 66 psi | 15 psi | N/A | N/A | ASTM D412 |
| % Elongation | 5 | 63 | 57 | 75 | N/A | N/A | ASTM D412 |
| Outgassing TML (Post Cured) | 0.07% | 0.34% | 0.29% (not post cured) | 0.13% | 0.11% | 0.34% | ASTM E595 |
| Outgassing CVCM (Post Cured) | 0.02% | 0.10% | 0.04% (not post cured) | 0.05% | 0.06% | 0.09% | ASTM E595 |
| UL Flammability Rating | 94 HB | 94 VO | 94 VO | 94 HB | 94 HB | 94 VO | E180840 |
| Temperature Range | -45°C to 200°C | -45°C to 160°C | -45°C to 200°C | -45°C to 200°C | -45°C to 200°C | -45°C to 200°C | |
| Thermal Conductivity | 6 W/mK | 1.1 W/mK | 2.5 W/mK | 3.0 W/mK | 3.0 W/mK | 1.8 W/mK | ASTM D5470 (modified) |
| Thermal Resistance @ 40 mils, 20 psi @ 1mm, 138KPa | 0.37 °C-in ² /W 2.45 °C-cm ² /W | 1.57 °C-in ² /W 10.13 °C-cm ² /W | 0.50 °C-in ² /W 3.23 °C-cm ² /W | 0.62 °C-in ² /W 4.00 °C-cm ² /W | 0.49 °C-in ² /W 3.16 °C-cm ² /W | N/A N/A | ASTM D5470 (modified) |
| Percent Deflection @ 10 psi | 4% | 5% | 10% | 20% | 25% | 30% | ASTM D575 (modified) |
| Percent Deflection @ 50 psi | 6% | 25% | 30% | 40% | 50% | 55% | ASTM D575 (modified) |
| Percent Deflection @ 100 psi | 10% | 40% | 45% | 60% | 75% | 85% | ASTM D575 (modified) |
| Thermal Expansion | 51 ppm/°C | 229 ppm/°C | 37.4 ppm/°C | 430 ppm/°C | 92 ppm/°C | N/A | IPC-TM-650 2.4.24 |
| Breakdown Voltage | >150 Volts AC/mil | >250 Volts AC/mil | 9,200 Volts AC/mil | >200 Volts AC/mil | >200 Volts AC/mil | >500 VAC/mil | ASTM D149 |
| Volume Resistivity | 5 x 10 ¹³ ohm-cm | 4 x 10 ¹³ ohm-cm | 9.6 x 10 ¹² ohm-cm | 2 x 10 ¹³ ohm-cm | 5 x 10 ¹³ ohm-cm | >10 ¹⁴ ohm-cm | ASTM D257 |
| Dielectric Constant @ 1MHz | 3.2 | 5.5 | 13.61 | 3.31 | 3.20 | N/A | ASTM D150 |

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