



## Case Study: GORE® Thermal Insulation for the DELL XPS 17

# Thermal Management for New Standards in Performance & Design



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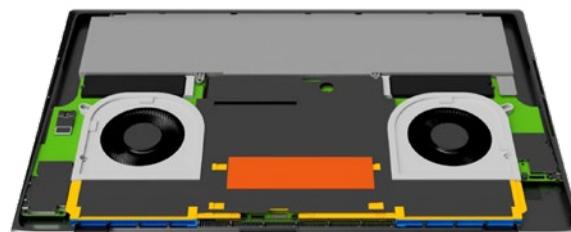
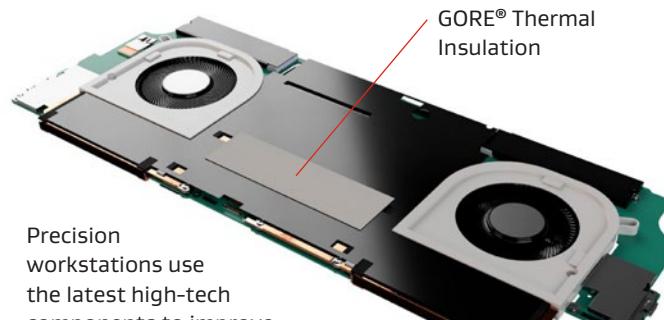
## ? CHALLENGE

As a market leader in the segment of business laptops, it was DELL's ambition that their **new laptop model had to exceed the absolute highest industry standards** in terms of design, performance as well as durability – or even set new benchmarks. Everything should be well-rounded and perfect.

"GORE® Thermal Insulation serves as an ideal completion to the primary thermal management module in this particular system design. Shortly after the conception of the product design had started, DELL contacted us."

Dylan CH Huang, Field Sales Associate Taiwan,  
Thermal Insulation

Based on DELL's previous experience of working with Gore on two other projects, **they knew we had an innovative and unique solution to offer that would enable them to build the best possible product: GORE® Thermal Insulation.**



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A graphite layer between the hot components and the outside of the laptop allows heat to be efficiently transferred to thermal rejection materials, while gore layers placed strategically throughout the system prevent hot spots from affecting other components or the user.

Fin stacks

Graphite Layer

GORE® Thermal Insulation



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## SOLUTION

GORE® Thermal Insulation is an advanced thermal management solution with a **conductivity lower than air**. This unique innovation enhances heat spreading capabilities which lets components perform at higher levels for considerably longer periods of time, reduces hot spots and accommodates shrinking form factors. Hence, GORE® Thermal Insulation significantly improves the overall user experience – **the perfect fit for DELL's high demands**.

For example, the design advantages gained with GORE® Thermal Insulation allowed DELL to **fit a 17-inch panel inside a 15-inch housing** without compromising the performance of the XPS 17. The CPU-performance could even be increased thanks to the enhanced heat spreading properties of our product.

But our support for the customer didn't stop there. For an optimized design, **our technical engineer Mark Wang worked closely with DELL's ODM in Taiwan to ascertain the proper and effective use of GORE® Thermal Insulation for an optimized design**. By sharing our knowledge we ensured process quality and efficiency.

Increase Performance with GORE® Thermal Insulation	Reduce Hotspot Temperature with GORE® Thermal Insulation	Thinner Product Design with GORE® Thermal Insulation
<ul style="list-style-type: none"><li>With a <math>k_z</math> lower than air, thinner GORE® Thermal Insulation can replace the air gap, allowing for more graphite to be included</li><li>Delay throttling of performance by moving heat away from the heat source and blocking heat from the device surface</li><li>Enable components to operate at higher power for longer time</li></ul>	<ul style="list-style-type: none"><li>Reduce surface temperatures by 1–6 °C (depending upon system power and insulation thickness)</li></ul>	<ul style="list-style-type: none"><li>Enable thinner designs while maintaining performance by replacing an air gap with Gore's thinner, compressible thermal insulation</li></ul>

Legend: GORE® Thermal Insulation (Blue), Heat Spreader (Grey), Heat Source (Red)

### THE CORE OF THE SOLUTION: GORE® THERMAL INSULATION

The solution used in the DELL XPS 17 laptop was a customized application of GORE® Thermal Insulation. The chart above highlights the key benefits at a glance.

For more detailed information, visit this link: [www.gore.com/products/thermal](http://www.gore.com/products/thermal)



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## RESULTS

The Gore team was the perfect fit for the job. Our unique expertise in the field of passive thermal management and the innovative properties of GORE® Thermal Insulation with a conductivity lower than air empowered DELL to develop the best possible product. The wins:

- Custom, high-quality thermal management solution
- Fulfillment of surface temperature specs
- Enhanced CPU-capacities
- Greater number of design choices
- Quality and efficiency thanks to close collaboration with the ODM in Taiwan



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"This project solidified DELL's view of Gore as a trustworthy partner and thermal management expert that pushes innovation forward."



Dylan CH Huang, Field Sales Associate Taiwan,  
Thermal Insulation

### WANT TO KNOW MORE?

To learn more, visit our Website:  
[gore.com/products/thermal](http://gore.com/products/thermal)

Or check out more of our case studies:  
[gore.com/mestories](http://gore.com/mestories)



# Why Choose GORE® Thermal Insulation?

Leading OEMs trust in GORE® Thermal Insulation because they know our product quality and expertise can help accelerate their development of innovative and differentiated devices in fast-paced, highly competitive markets.



## GLOBAL MOBILE SUPPLIER

Decades as a preferred venting partner of global top OEMs in a wide range of applications — from smartphones and smart watches to tablets, earphones, Bluetooth speakers and to cameras.



## FAST RESPONSE DESIGNS

Gore supports the need of the mobile electronics industry with quick turnaround of designs and prototypes, to ensure that engineering teams can meet their project timelines.



## RELIABLE PERFORMANCE

Every Gore product must meet the highest standards of quality, performance and reliability. Through a deep understanding of end-use applications and demands, our products deliver what we promise.



## SUPPLY SECURITY

Years of experience in the challenging field of mobile electronics have made us experts at supplying high-volume, fast-ramp products with the timing and quality required for success.

## Interested in Testing our Products or Talking to our Experts?

For additional assistance, please contact a Gore representative.

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