

NOT ALL DUST IS CREATED EQUAL

THINENGINE LOOKS AT THE EFFECTS OF DUST, HEAT & METALLIC PARTICLES ON COMPUTERS & ELECTRONICS IN MANUFACTURING PLANTS

Industrial environments pose many challenges for computers and electronic devices. These computers are at risk of being exposed to extreme temperatures, moisture, liquids, chemicals, dust and other floating particles.

Sometimes when a unit fails, the root of the problem is disguised or overlooked due to a more prominent obstacle. For example, tropical temperatures, exposure to direct sunlight for long periods of time or placement near warming equipment or open flames can cause units to overheat and stop working. But so can dust. When too much dust gets inside a computer or electronic device, it acts like insulation, preventing the device from cooling down and causing it to overheat.

One of our clients, a wheel manufacturer, had the problem of units overheating. “They can’t take the heat,” they said. We set them up with our IPC industrial computers, knowing they could withstand the hot temperature.

Our units failed. *[Womp, womp]*

We had them sent back to us so we could identify the issue. The problem was, we didn’t find anything wrong with them and couldn’t figure out why they weren’t working.

So, we sent someone into the plant to investigate.

The Investigation

It was raining the morning we arrived at the tire manufacturer. It was an older plant – a long, sheet-metal building with a series of small windows that came together as a crown-like glass top, a feature typical of factories built in the 1930s and 1940s. With so many windows overhead, it was no wonder the temperature indoors became very hot.

Inside the factory, it was very dusty. In any manufacturing plant, dust is a common concern. Unlike the minor to moderate levels of dust in a home or office, workshops and factories generate extremely dusty environments.

It must be the dust, we thought. We opened up the units’ cases and, sure enough, found dust – but not enough to make the units overheat.

Suddenly, the clouds parted and literally shed new light on the situation. With the sun beaming down through the upper windows, we could see the massive amount of dust swirling in the air throughout the plant. This was no ordinary dust – it appeared to be shimmering.

In fact, the dust was actually metal filings generated from the factory machines spinning the aluminum wheels they manufactured. It was these metallic elements (i.e. conductive materials) that were getting inside the units and landing on the board. Over time, the metal filings build up against the super fine connections on the board and once the bridge is made between two contacts on the board, it shorts out the board.

The units weren't overheating, they were short-circuiting.

The Solution

We switched out the original units with our [Cyclone PC](#) with fully-sealed enclosure and applied [conformal coating](#) (a chemical coating or polymer film that acts like a shellac and "conforms" to the circuit board) to the boards to protect the circuits from contaminants and prevent build up. We also upgraded their keyboards to our industrial, sealed [Typhoon](#) model. No longer do their units "overheat" or boards short-circuit from "dust."

CASE CLOSED.

Don't let another computer bite the dust.

Use a proven, reliable [thinENGINE industrial computer](#).

Call us today and get started on a custom solution to your unique needs!

(636) 257-2111

About thinENGINE Computer:

Since 1984, thinENGINE Computer by INDUCOMP Corp. has been providing custom hardware and software solutions to industrial markets. Based in Pacific, Missouri, we are one of the largest and only industrial computer manufacturers that design, fabricate and assemble products in the United States. thinENGINE manufactures more than 50 different models of monitors, industrial computers, keyboards and pointing devices. We have the capabilities to design, fabricate, manufacture, assemble and deliver custom products to meet your unique needs. To learn more, visit www.thinengine.com.