Mishandling Your Data Center’s Cooling System Costs More Than You Think

How you handle your data center cooling system can have profound effects on your budget and the environment. Liquid immersion cooling is the smart solution.

Is Single-Phase Immersion Cooling the Best Sustainable Cooling Solution?

In the search for the best cooling solution, contenders include single-phase and two-phase immersion cooling and direct-to-chip. Single-phase wins.

Problems That Lead to Delays in Setting up Data Center Cooling Systems

Supply chain issues and complex designs can delay the construction of data center cooling systems. Upgrade to liquid immersion to keep things moving fast.

Here’s Why Immersion Cooling Is Still Better Than Air Cooling

Among data center cooling technologies, liquid cooling remains preferable to air cooling for efficiency, cost, and environmental sustainability.

The Problem With E-Waste: Underscoring the Challenges Brought About by Tech Scraps

E-waste pollution is a growing problem for data centers worldwide. However, data centers can reduce e-waste through green technology like immersion cooling.

Best Practices in Creating Green Data Centers (Do They Work?)

Green data centers manage environmental resources responsibly. Innovations such as liquid immersion cooling can help companies achieve sustainability.

How Data Centers Have Changed Through the Years

Data centers have evolved over the decades. Cooling systems have kept pace with these facilities to become more efficient and effective.

Benefits and Challenges of Environmental Regulations for Data Centers

The growth of data centers has led to environmental regulations. These can impinge on operations but also present opportunities like sustainable cooling.

The Truth About Digital Technology Sustainability (And What We Can Do About It)

Digital technology makes modern business possible, but at an environmental cost. Some of these issues can be addressed by immersion cooling in data centers.

Improving the Efficiency of Data Centers

Data centers accounted for 1.8% of the United States' total electricity consumption in 2014, according to the U.S. Department of Energy. That translates to some 70 billion kilowatt-hours! Smaller data centers are major contributors to this consumption. In addition to housing around 50% of all servers, their energy management is generally quite poor.

Energy efficiency must rank as a key priority for data centers, as it affects everything from the wider environment to an enterprise's bottom line. This wide

ripple shows just how important it is for data centers to be constantly innovating and improving their systems.

GRC’s liquid immersion cooling offers a revolutionary way to cut operational expenses, *while* also delivering greater efficiency gains than the alternatives. Immersion cooling uses a safe-for-electronics liquid coolant instead of air; removing heat at a fraction of the cost to your budget.

This cooling method is literally over a thousand times more effective at conducting heat away from servers than conventional air cooling; which translates to substantial direct and indirect cost savings.

Why Data Center Efficiency Matters

Quite simply, inefficiency wastes money and natural resources. The physical efficiency of operational processes dictates how well data centers can convert electricity into computational capacity—and thus into profit.

As customers demand more powerful processing, the only viable way to keep energy use in check is to increase efficiency. Data centers have begun to improve this metric in the past few decades; however, they have faced challenges in developing it further. We’re reaching the crucible, where conventional data centers can no longer meet the computational needs of the economy.

At the same time, as data centers struggle to perform better, energy efficiency matters even more. Facilities are growing in number and size. They’re using more electricity and producing more emissions just as these sustainability issues have captured the public’s attention.

Efficiency directly correlates to variables that matter to both data centers and the public: financial and environmental health. Data centers need to find ways to raise efficiency. Enter GRC’s liquid immersion cooling solutions.

Upgrade to Liquid Immersion Cooling

Data center cooling represents one of the main energy uses and operational costs dragging down efficiency. As such, it also represents a key area for implementing massive upgrades to operational efficiency.

The reason cooling takes such a large percentage of data center electricity and finances is that conventional air cooling is extremely inefficient. It’s a legacy solution that still works, yes—but not well enough to meet modern demands. Newer and more effective methods like liquid immersion cooling are here to bridge the gap.

Improvements to cooling technology account for much of data center efficiency upturns in recent decades; for instance, the development of cold-plate and rear-door heat exchanger technologies. This process continues with GRC's liquid immersion cooling, which brings unprecedented efficiency to the data center industry.

Immersion cooling only consumes around 2-3% of the energy a data center needs to function. By contrast, a legacy cooling system may double or even triple the energy that data centers use.

There's no better way to see the effects of energy efficiency than to look at an extreme case. A scientific supercomputer project systematically measured the different available cooling options and found GRC immersion cooling to be much more efficient than all the alternatives.

Using liquid immersion, the Vienna Scientific Cluster cut costs while increasing computational ability. They reduced their infrastructural requirements and resource consumption *and* built the strongest supercomputer in Austria!

Improve Cost-Effectiveness

When you upgrade to a more energy-efficient cooling solution, your data center runs on less electricity, which cuts the costs of operation. For example, switching to GRC's immersion cooling can reduce your operating expenses by as much as 50%!

Your entire data center becomes more lightweight, enabling your business to save on the total capital budget too. You don't need to buy wasteful generators and batteries for an overbuilt air cooler. The liquid immersion tanks fit into a compact space, minimizing floor use.

There are other financial benefits to liquid immersion cooling. It reduces wear on parts, so you spend less on maintenance and replacement. However, the main advantage of its extreme efficiency is in the smaller electricity bill: immersion cooling uses a mere 5% of the electricity that air cooling requires.

The cost advantages of liquid cooling combine with savings from other efficiency improvements that can be implemented throughout the data center. For instance, if you use more energy-efficient processors to save on electricity, you'll see synergistic cost savings from these processors and immersion cooling.

Safeguard the Environment

Energy efficiency is measured by the sum of environmental resources needed to achieve the desired end, such as powering data centers. Using unnecessary resources isn't only about financial costs. It also drives damaging extractive activities, such as strip mining, and increases the burden of fossil fuel emissions on the environment.

While some forward-thinking data center operators have already taken it upon themselves to make their facilities environmentally sustainable, this trend is quickly becoming the norm. Public opinion and government regulations are increasingly pressuring the industry to minimize their resource utilization.

The use of innovative technologies that simultaneously serve the financial interests of businesses has emerged as the best way to safeguard the environment. This lets you improve the energy efficiency of your data center and go green while simultaneously cutting back on expenses. Incidentally, your servers will run faster, quieter, and more reliably too!

GRC's liquid immersion cooling glides by with half as much electricity as other cooling options. This is because liquids transport heat far more effectively than

air. It also allows you to productively reuse server heat for various environmentally friendly (and profitable) functions. Moreover, immersion-cooled data centers require less water from the environment—in some cases, none at all.

These same synergies have ecological benefits equal to their economic ones. For example, energy-efficient processors running in liquid immersion cooling tanks will slash carbon waste, water waste, pollution, and other negative environmental impacts that data centers must consider.

Boost Data Center Efficiency With GRC

With enhanced efficiency, it’s possible to boost profits while also doing your bit for the environment. Every step you take to make your data center more energy-efficient will result in a substantial return on investment. And one of the biggest steps you can take right now is to upgrade to liquid immersion cooling.

Immersion cooling uses less electricity to deliver immensely more computational power. GRC has the history, global presence, and expertise you need to increase performance, while saving your data center half its total operational costs. Enjoy these results now—get started with GRC today.