



DATA CENTER & IT COOLING

# Liquid Cooling Guide



# Push the boundaries of liquid cooling

CHANGE THE DYNAMIC OF YOUR DATA CENTER WITH MOTIVAIR'S LIQUID COOLING SOLUTIONS

- 1 **GAIN EFFICIENCY**
- 2 **INCREASE RACK UTILIZATION**
- 3 **INCREASE PROCESSING POWER**
- 4 **USE LESS SPACE**
- 5 **LOWER OPERATING COSTS**

Motivair's Liquid Cooling Technology allows you to leverage increased processing power while using less energy and space than traditional air-cooled systems.

**Market demands & technological advances are driving a growing need to use liquid-cooled servers. Equipment inside the white space is getting hotter and more dense.**

Data centers have seen an exponential growth in the need for high density servers and switches in the last five years – and that trend will continue.

Liquid cooling enables the adoption of high performance technology for critical businesses and essential technologies, like artificial intelligence, autonomous vehicles, cutting-edge medical research, remote work capabilities, and hyper-converged Infrastructure.

These technologies are accelerating, and with them the need for increasing CPU & GPU power densities.

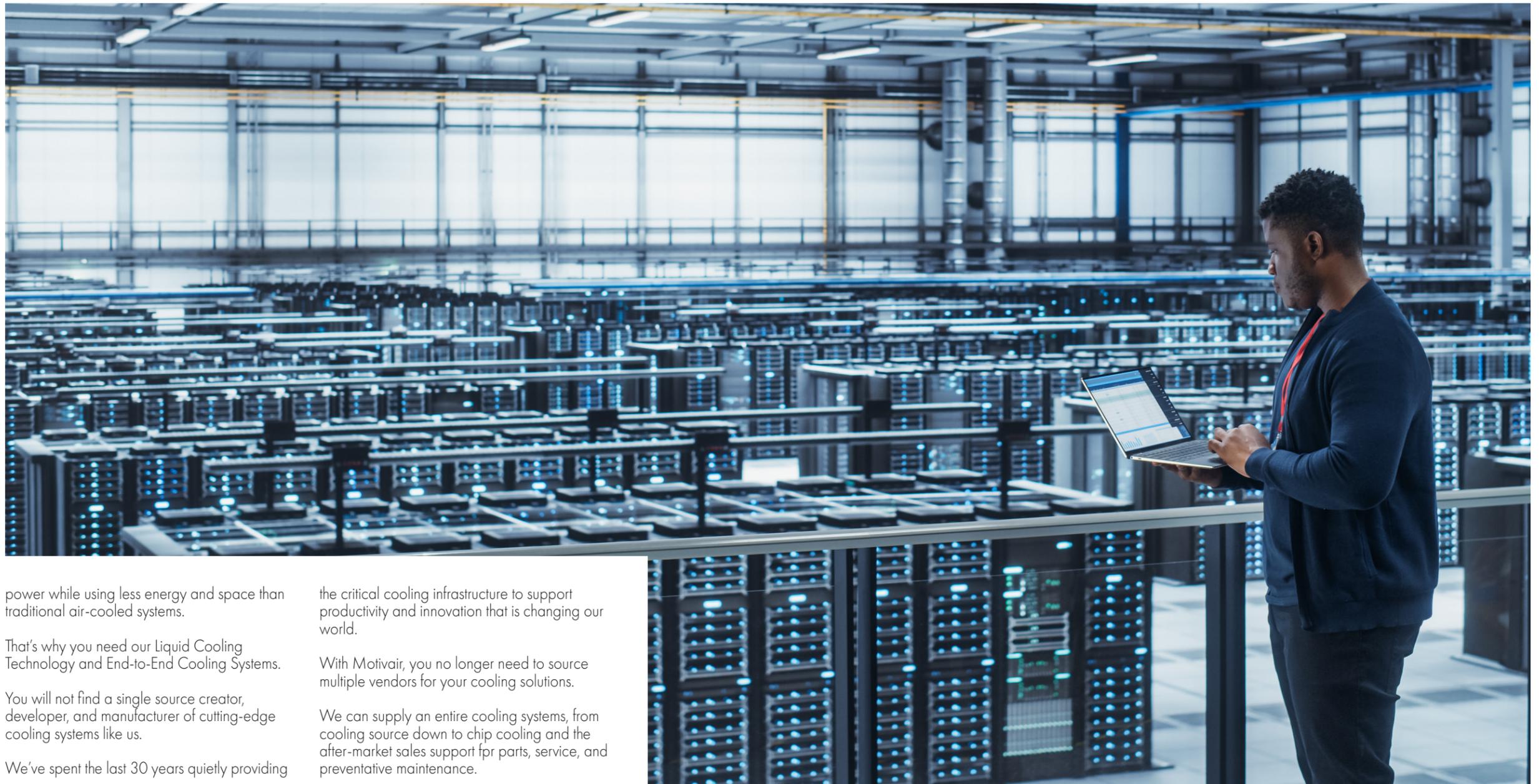
The latest generation of CPUs consumes over 300 watts. Forecasts show 500-750 watts, and 1000 watts packages are already being designed.

While most data centers are built to be air-cooled, liquid cooling – more specifically, single-phase direct liquid cooling— offers accelerated performance and ability to scale out to at least 1,500 watts per processor.

That's a key performance point to keep up with the rapid rise of artificial intelligence and a broader adoption of HPC in enterprise data centers.

## **END-TO-END COOLING, ENDLESS OPPORTUNITIES**

Motivair's Liquid cooling technology allows you to leverage increased processing



power while using less energy and space than traditional air-cooled systems.

That's why you need our Liquid Cooling Technology and End-to-End Cooling Systems.

You will not find a single source creator, developer, and manufacturer of cutting-edge cooling systems like us.

We've spent the last 30 years quietly providing

the critical cooling infrastructure to support productivity and innovation that is changing our world.

With Motivair, you no longer need to source multiple vendors for your cooling solutions.

We can supply an entire cooling systems, from cooling source down to chip cooling and the after-market sales support for parts, service, and preventative maintenance.

# End-to-end liquid cooling, endless opportunities

Motivair's End-to-End Cooling Solutions for High-Performance Computing, Data Centers & IT Infrastructure are an all-in-one liquid cooling solution, providing products and the post-sales service for the entire lifetime of your cooling infrastructure.

<p><b>DYNAMIC® COLD PLATES</b></p>	<p><b>IN-RACK MANIFOLD QUICK CONNECTS &amp; HOSES</b></p>	<p><b>IN-RACK CDU</b></p>
		

## LIQUID COOLING FOR COMPACT OR TDS SYSTEMS

For 1:1 rack high-density servers or TDS rack (test and development system), small systems, requires building cooling system.

**KEY USES:** High-Performance Computing • Semiconductor • Data Center • Telecom • Colocation Data Center • Enterprise Data Center • Higher Education • Government

<p><b>DYNAMIC® COLD PLATES</b></p>	<p><b>IN-RACK MANIFOLD QUICK CONNECTS &amp; HOSES</b></p>	<p><b>FLOOR MOUNT CDU</b></p>
		

## LIQUID COOLING FOR MEDIUM-TO-LARGE SYSTEMS

For larger HPC, exascale, AI clusters & supercomputers. Requires building cooling system.

**KEY USES:** Semiconductor • Data Center • Telecom • Colocation Data Center • Enterprise Data Center • Higher Education • Government • Artificial Intelligence • Exascale Class

<p><b>DYNAMIC® COLD PLATES</b></p>	<p><b>IN-RACK MANIFOLD QUICK CONNECTS &amp; HOSES</b></p>	<p><b>HEAT DISSIPATION UNIT</b></p>
		

## CONVERT LIQUID TO AIR COOLING

For small, medium or large high-density servers or simply liquid-cooled servers, used when building cooling water is not available. Ideal for large enterprise or co-lo data centers.

**KEY USES:** High-Performance Computing • Semiconductor • Data Center • Telecom • Colocation Data Center • Enterprise Data Center • Higher Education • Government

## Mitigate risk & accelerate progress

Motivair's Liquid Cooling Technology offers the best combination of performance, resiliency, and total cost of ownership at the chip level

### WATER QUALITY

Patent-pending fluid flow naturally generates uniform cooling across the entire package

### SUPPLY CHAIN DISRUPTION

End-to-End Value Chain Partner with USA based design, manufacturing and support services

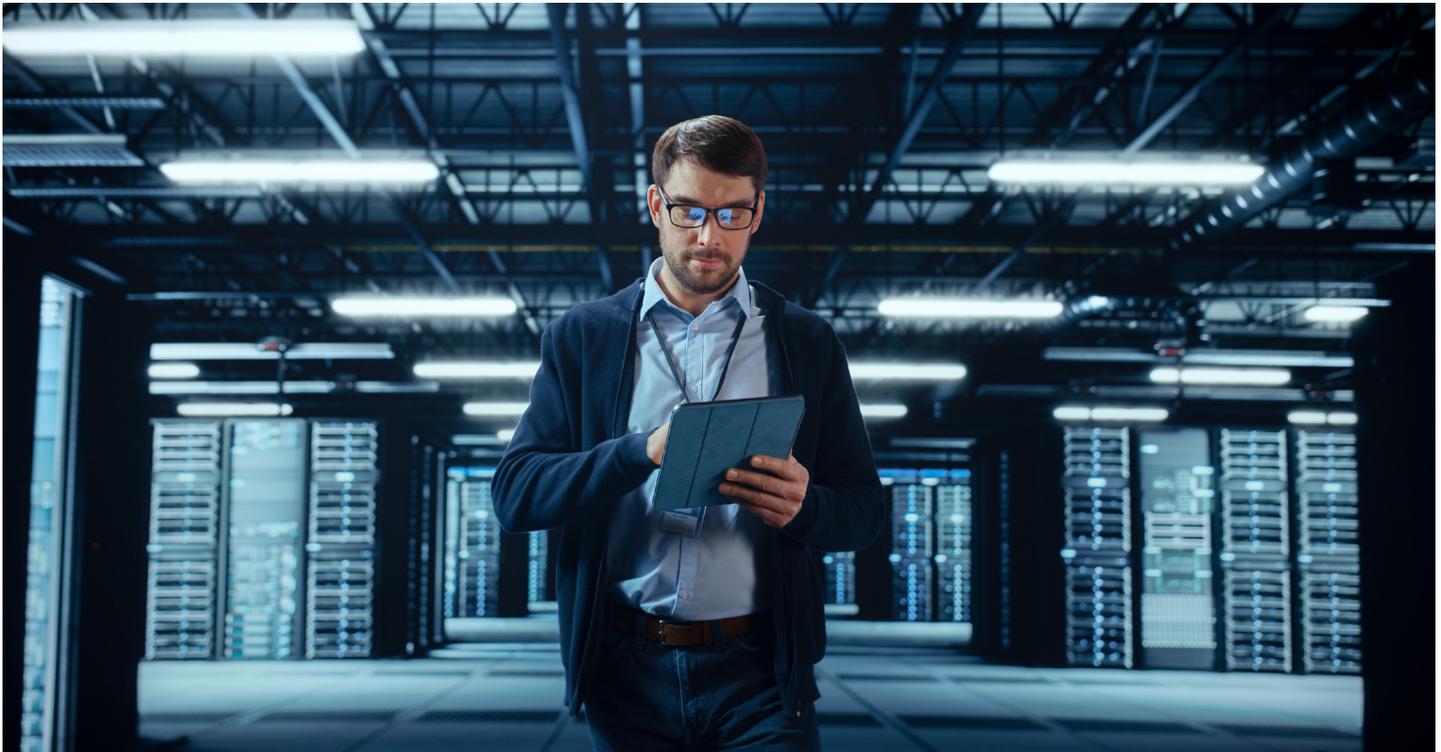
### SERVICEABILITY

End-to-End installation, start up, and commissioning of complete liquid cooling system



## Quality Service & Support from Trained Industry Professionals

Motivair's Global Client Services offers the highest level of service to customers before, during and after a project is completed.



### WHY ROUTINE MAINTENANCE IS CRITICAL

- 1 IMPROVES SYSTEM UPTIME**
- 2 EXTENDS EQUIPMENT LIFE & ROI**
- 3 REDUCES UNINTENDED DISRUPTIONS IN YOUR BUSINESS**
- 4 MAXIMIZES SYSTEM EFFICIENCIES**

#### Experience

With over 30 years in business, Motivair has established itself as a world-class supplier of critical cooling equipment.

We understand the intricacies of chilled water systems both inside and outside your mission critical facility, which gives us a unique understanding of how your building operates.

#### Knowledge

We take pride in being able to help and support our clients by sharing the combined

knowledge of our dedicated team.

Each client and each project have unique and individual needs, however the common denominator is often the same; the goal is a seamless transition from procurement to implementation, an area our installation services team is well versed in.

#### Availability

Our global service group is always backed by our dedicated service support technicians whenever it's needed.

Whether you're looking for advice on system adjustments or scheduling a routine maintenance, our Professional Services team is here to help.

#### Single Source Responsibility

Whether you are looking for a simple product installation or to engage our services team from site survey to engineering to design, our services team can handle any level of involvement that you are looking for.

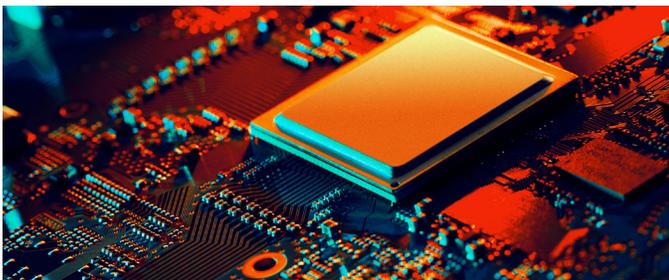
# We cool the most advanced technology on the planet

We discover, design, and develop resilient thermal technologies and strategies, and convert that into actionable insights and unparalleled value for our clients.

From climate research to finance, cloud to artificial intelligence, customers trust Motivair's cooling technologies so they can break new boundaries and help deliver tomorrow's innovations faster.

We're helping our clients discover cures for diseases, combat climate change, and make tomorrow's data-driven services more reliable and accessible.

We are touching millions of lives each day by providing the critical cooling technology to support productivity and innovation that is changing our world.



## DIRECT-TO-CHIP COOLING

Supercomputing isn't just in the lab anymore. The power of high-performance computing is scaling out as more enterprises and corporations look to utilize artificial intelligence for advanced decision-making and accelerate digital transformation.



## DATA CENTER & IT COOLING

Designed for and used by the enterprise data center and supercomputer owners and operators, our cooling technology is engineered to help you leap forward in scale, quality, and speed.



## THERMAL MANAGEMENT

When it comes to cooling your critical infrastructure, we work to customize specialty chiller technology for you, rather than selecting from a catalog



## CLIENT SERVICES GROUP

Manage every aspect of your cooling infrastructure, from planning and design to start up, commissioning and post-sale performance. Your business depends not only on our products but also our ability to respond when you need us.