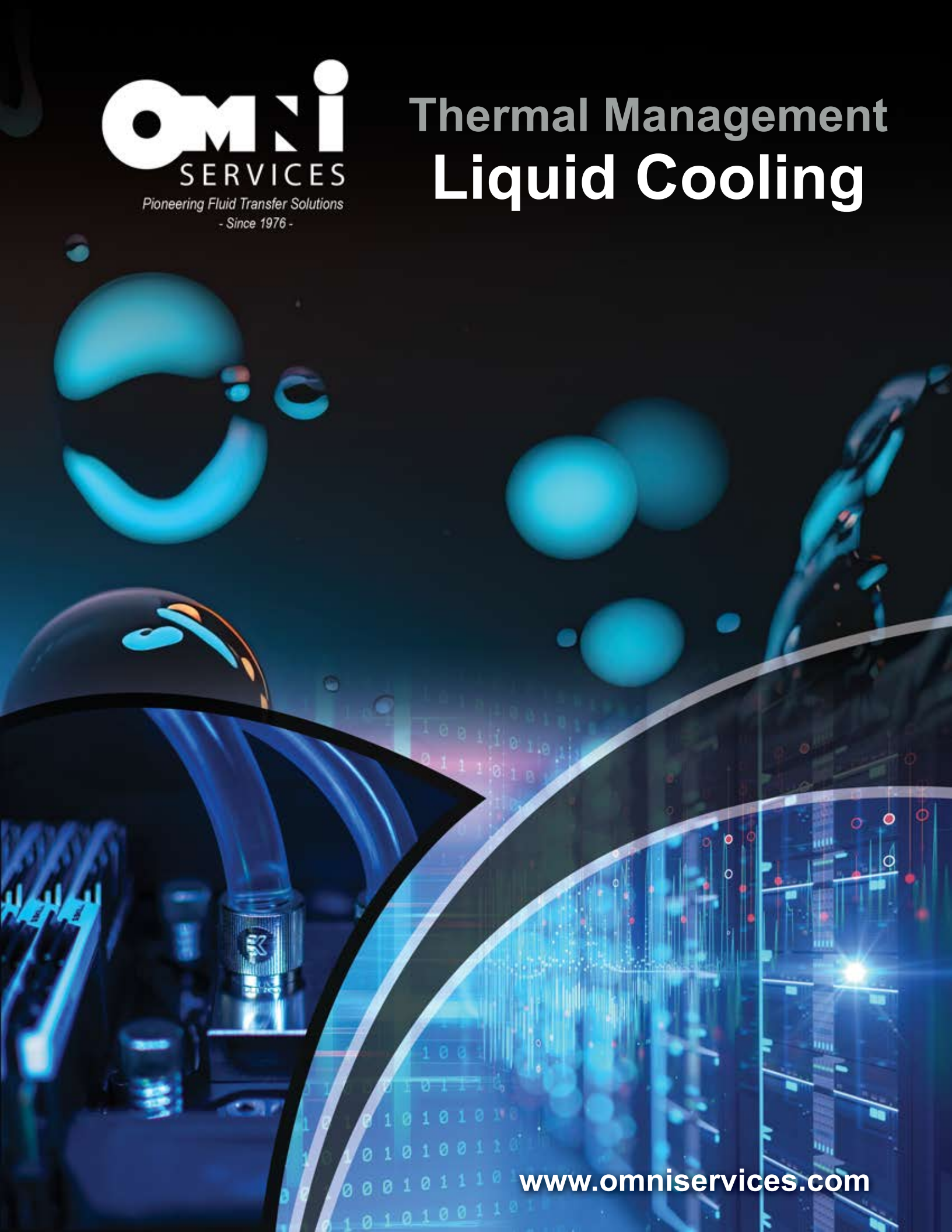
OMNI SERVICES

Pioneering Fluid Transfer Solutions

- Since 1976 -

Thermal Management
Liquid Cooling



www.omniservices.com

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"Any Direction"

Who we are:

In 1976 when Bob Mitchell founded Omni Services it was on the principle of establishing a company that cared for both its employees and its customers. The company was named Omni Services because "we will go in any direction" to service our customers. Service is a core value that was taken seriously at our inception and is still a core value today.

Quality:

Omni Services has always sourced product from the most respected manufacturers in the industry. This was one of Omni's core tenants when the company was founded and remains an important differentiator today - only the best in each product category.

Our premier suppliers are vetted on product quality, on-time delivery, adaptability, and alignment of values between our organizations.

Beyond product, we are founding members of the NAHAD industry group (National Association for Hose and Accessory Distribution) and more importantly, we assemble products in accordance to the NAHAD Hose Safety Institute and are Continental STAR certified to ensure our hose assemblies meet the industry's highest quality and safety standards.

Approach:

As specialists in fluid transfer products we always use a consultative approach when working with our customers. Understanding the application, media, environment, operating and ambient temperatures and physical space limitations are just a small sample of what we consider with product recommendations.

More than product specialist, we're business partners.

We want to understand our customer's manufacturing process, lead times, and capacity constraints so that we can provide real value in selecting, manufacturing, and supplying product to our customers. Working with OEMs to streamline the design and production process is where we excel.

LIQUID COOLING

High Performance Computers & Data Centers

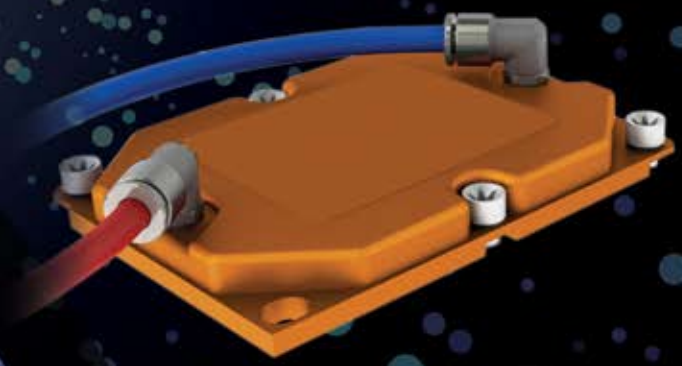
Rack & Door Cooling

In today's world of smaller, denser, faster, and hotter high-performance-computing, liquid cooling is essential to lowering processor temperatures. With door and rack cooling configurations Omni can provide all fluid components from jumper lines and quick disconnects to manifolds and source lines.

We consider the media as it relates to temperature and chemical compatibility of tube stock as well as insular properties. We offer many customizations from color to fitting style to help deliver on our customers unique solutions.

Cold Plate Cooling

Cooling cold plates requires smaller diameter tubing or hard piping that is capable of a tight bend radius without compromising flow. In some cases that means thermally formed tube assemblies or metal formed tube. Equally connectors need to accommodate the space constraints of staying within a server while still being able to disconnect if need be. Options like low profile push-on hose and 1/8" quick connectors are often seen in these applications.



LIQUID COOLING

High Performance Computers & Data Centers

Direct to Chip

Like cold plate cooling, direct to chip applications require the smallest diameter tubing to fit within the server cavity. Formable thermal tubing and low profile push-on hose assemblies are options to consider in these ultra tight spaces.

Single phase DLC often uses a water-glycol fluid mixed with various inhibitors circulated in a closed loop cooling system that brings cold fluid directly to the cold plate or chip level where it absorbs the heat and moves the fluid to a heat exchanger or CDU where it then is cooled. In these systems material compatibility is a primary concern to avoid contamination and degradation of any components constantly exposed to the media. As with all liquid cooling applications, providing purpose-built connectors coupled with low profile flexible hose for routing inside the tight space of a server blade gives the flexibility to manufactures to easily route fluid transfer components with the confidence of leak free connections.

Two Phase DLC, an evaporative system of cooling uses refrigerant instead of a constant flow of liquid. This highly efficient process also requires specially designed purpose-built fittings and tube with low permeability that accommodate refrigerant in both a gaseous and liquid state. Challenges here can be how to route hose and tube configurations and the attachment method between hard wall tubing at the cold plate and flexible tube that can carry the refrigerant. These systems need to be hot swappable using quick connects suited for refrigerant.

Immersion Cooling

Single Phase Immersion Cooling:

Plumbing immersion cooling tanks consists largely of source lines and valve components bringing media to and from the heat exchanger and cooling towers. Chemical compatibility and flow are considerations when selecting fluid transfer components used in immersion cooling.

LIQUID COOLING

High Performance Computers & Data Centers

Cooling Distribution Units

CDUs operate as the heart of high performance liquid cooling systems.

CDUs utilize hard piping, valves, regulators, gauges, heat exchangers and pumps to process heated media and return it to a stable cool temperature that can be recirculated. Source lines provide the highway between CDUs and server racks and immersion tanks.

Designing large cooling capacity in a small space can be challenging.

We supply both custom hard wall formed tubing as well as flexible fluid transfer options. We can custom create fittings to work in extremely tight routing situations.

Coolers and Chillers

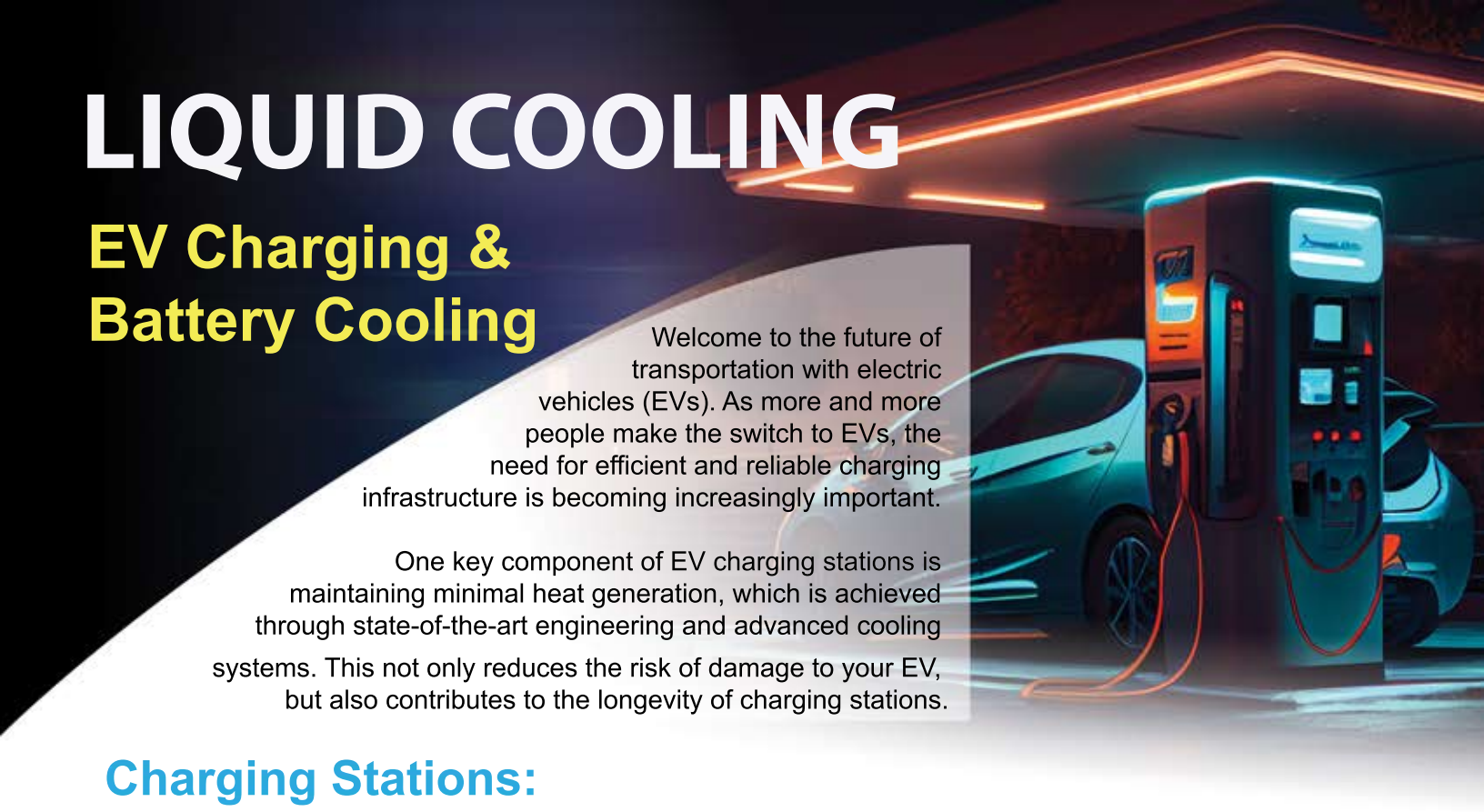
Transferring heat to keep facility water within an acceptable temperature range is critical in cooling data center equipment.

This often involves moving large amounts of fluid to and from chillers and evaporators as well as within them.

With large bore hose and tube capabilities we help engineer custom solutions for our partners who manufacture chillers used in many applications.

LIQUID COOLING

EV Charging & Battery Cooling



Welcome to the future of transportation with electric vehicles (EVs). As more and more people make the switch to EVs, the need for efficient and reliable charging infrastructure is becoming increasingly important.

One key component of EV charging stations is maintaining minimal heat generation, which is achieved through state-of-the-art engineering and advanced cooling systems. This not only reduces the risk of damage to your EV, but also contributes to the longevity of charging stations.

Charging Stations:

Level 3 charging stations, also known as DC fast charging stations, utilize advanced cooling technology to ensure that they can operate at peak performance, even under heavy usage.

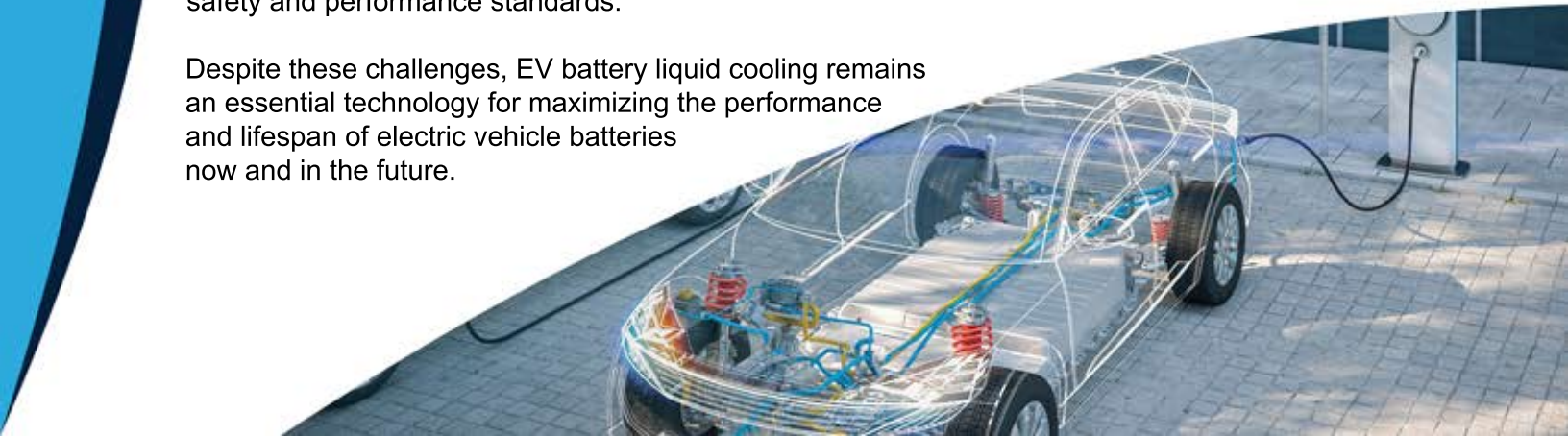
The cooling system in Level 3 charging stations is typically comprised of a liquid-based cooling system, which helps to dissipate heat generated by the charging process. This allows the charging station to maintain a stable temperature, preventing overheating and ensuring a reliable and consistent charging experience for electric vehicle owners. So, whether you're on a road trip or just need a quick charge on the go, you can trust that Level 3 charging stations are equipped with the best cooling technology available to keep you charged and on the road.

Battery Cooling:

Liquid cooling is a critical component of modern BEV's. It is a technology that allows for efficient and effective cooling of the battery system, ensuring maximum performance and longevity. By keeping the battery system at the optimal temperature, EV liquid cooling not only improves the vehicle's range and power but also prevents damage from overheating.

While EV battery liquid cooling is a critical technology for maximizing the performance and longevity of electric vehicle batteries, there are still some challenges that need to be addressed including leak points, weight, fluid routing within space constraints and flow. This requires careful engineering and testing to ensure that the cooling system works seamlessly with the rest of the vehicle and meets the required safety and performance standards.

Despite these challenges, EV battery liquid cooling remains an essential technology for maximizing the performance and lifespan of electric vehicle batteries now and in the future.



LIQUID COOLING

Industrial Power

Industrial Battery Storage

With an ever-increasing need for more power, storing power is critical for grid stabilization, backup power and load shifting.

Industrial battery storage using large scale storage systems and battery storage micro grids can generate a lot of heat that can damage battery systems.

Liquid cooling industrial battery systems is needed to maintain a level temperature for battery system stability.

LIQUID COOLING

Industrial Power

Power Inverters & Transformers

Large scale power inverters and transformers generate considerable heat during electrical conversion and transfer processes. Without effective cooling, this heat can lead to reduced efficiency, component degradation, and potential failure.

As power demands increase and systems become more compact, cooling solutions need to handle higher heat loads in smaller spaces.

Liquid cooling enables high power density designs by managing heat more effectively than air cooling.

Testimonials

Rear Door Manufacturer:

"Omni Services provides incredible value meeting our large quantity hose assembly requirements on a tight schedule, we wouldn't be able to perform with out them."

Cold Plate Manufacturer:

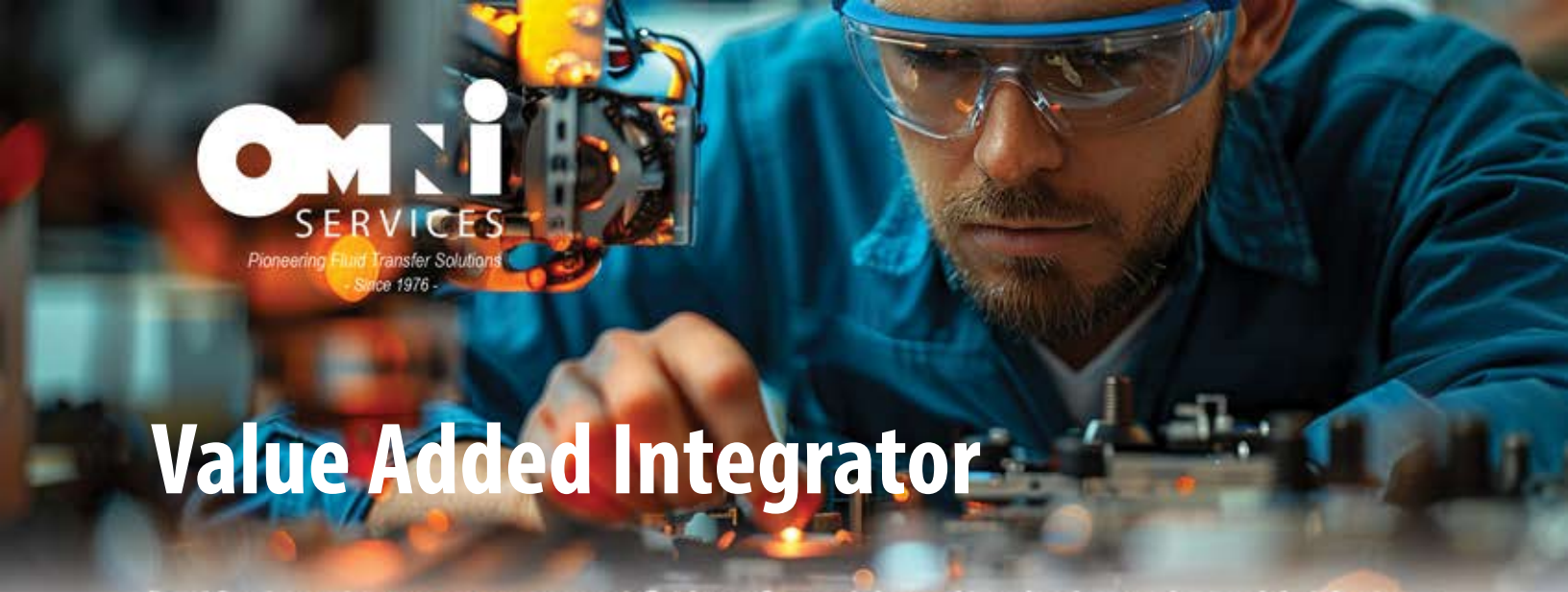
"Omni has been an integral partner in developing hose and formed tube connections for the manufacturer of our cold plate design. We would recommend them to anyone needing expertise in the design of fluid transfer within a server blade."

Rack Manifold Manufacturer:

"Partnering with Omni Services has given us the confidence in choosing the right products to connect our manifolds to server blades. Not only did Omni provide relevant industry expertise, they also were able to suggest manifold design changes to make our system more efficient and functional for our end users. Delivery at scale has been second to none, we would recommend them to anyone needing fluid assemblies"

CDU Manufacturer:

"Omni Services has been our go-to for helping us plumb our newest CDU. Their expertise in formed tube and hose connections has been invaluable in getting our CDU to market."



Value Added Integrator

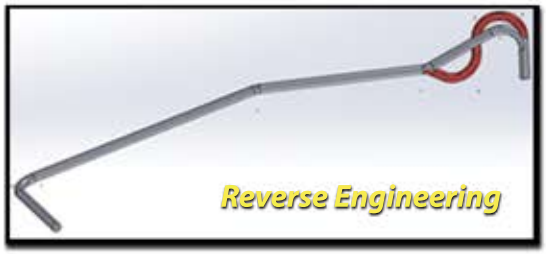
Omni Services exists to serve our partner's fluid transfer needs by working closely to understand their business, how we can bring efficiency and speed to their manufacturing process, reduce redundancies in their channel and ultimately provide the lowest landed cost. While our craft and product expertise is in fluid transfer products, we specialize in our partner's success.

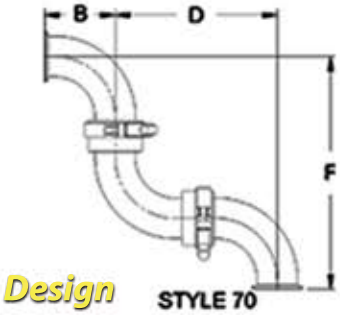
Capabilities

Taking a holistic approach, we work with our customers to review requirements for improvements and manufacturability, make recommendations, understand lead times and jointly work towards a solution that will meet each customer's individual needs.

This process may include:

- Print review & drawings
- Reverse engineering
- Material compatibility review
- Prototyping
- Testing/validation
- Quality review





- Demand planning
- Production
- Assembly and kitting
- Packaging requirements
- Stocking and shipping requirements

Premier Products

Hose

- EPDM
- Thermoplastic
- Rubber
- Refrigeration Hose
- Elastomeric Hose
- Metal Hose

Instruments

- Gauges (temperature, pressure)
- Thermometers
- RTD's
- Thermowells
- Sensors (temperature, pressure)
- Filters
- Flow meters, sensors and switches
- Pumps

Tubing

- Nylon Tubing
- Polymer Tubing
- Thermoplastic tubing
- Thermal formable tubing

Valves

- Ball valves
- Needle valves
- Metering valves
- Check valves
- High purity valves
- Directional valves
- Solenoid valves
- 2-way, 3-way, 4-way valves

Formed Tube

- Custom formed hard wall seamless formed tubing
- Hose/tube hybrid assemblies

Metals:

- Copper
- Stainless Steel
- Aluminum
- Alloys
- Tube Clamps

Manifolds & Spools

- Nylon Tubing
- Polymer Tubing
- Thermoplastic tubing
- Thermal formable tubing

End forming & connections

- Beaded
- Hose barb
- Bump
- O-ring face seal
- Sanitary connections
- Brazed connections

Connectors

- UQD
- Blind Mate
- Everis LQ
- Everis PLQ
- SCG
- CGB
- MLBD flat face dry break couplers
- FD83 quick Couplers
- Refrigeration couplings
- Danfoss 5400 Series
- Sanitary fittings

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Let's Make a Connection
1-800-229-2778
www.omniservices.com