

Delivering operational excellence and sustainability in pharmaceutical refrigeration



Transcritical CO₂ Chiller Rack - Oceanside, CA.



“After an extensive budgeting comparison and months of rigorous vetting for our last chiller purchase, I wouldn’t hesitate to acquire another Zero Zone system.”

Facilities & Engineering Specialist

Business Overview

Locations: 23 Manufacturing Facilities

Employees: 13,500

2024 Revenue: \$67.2 billion

Partners: Since 2016

A California-based biotechnology leader specializes in developing and manufacturing critical biologic medicines that demand precise temperature control throughout their supply chain. Their portfolio includes monoclonal antibodies and protein therapeutics, which must be maintained between 2-8°C (36-46°F) during production, storage, and distribution to ensure efficacy and regulatory compliance.

The company operates multiple manufacturing facilities equipped with industrial-scale refrigeration systems that maintain stringently controlled environments for both bulk drug substances and finished products. Their sophisticated cold chain infrastructure encompasses validated temperature-controlled warehouses, specialized shipping containers, and continuous monitoring systems. Given that a single batch of their biologic products can be valued at millions of dollars, any temperature deviation could result in catastrophic losses. To mitigate these risks, the company maintains comprehensive redundant cooling systems, backup power generation, and around-the-clock environmental monitoring.

Partnership Pillars



**Service and
Support Excellence**



**Tailored Solutions
for Pharma**



**Reliability
and System
Redundancy**



**Sustainability and
Environmental
Impact**

Service and Support Excellence

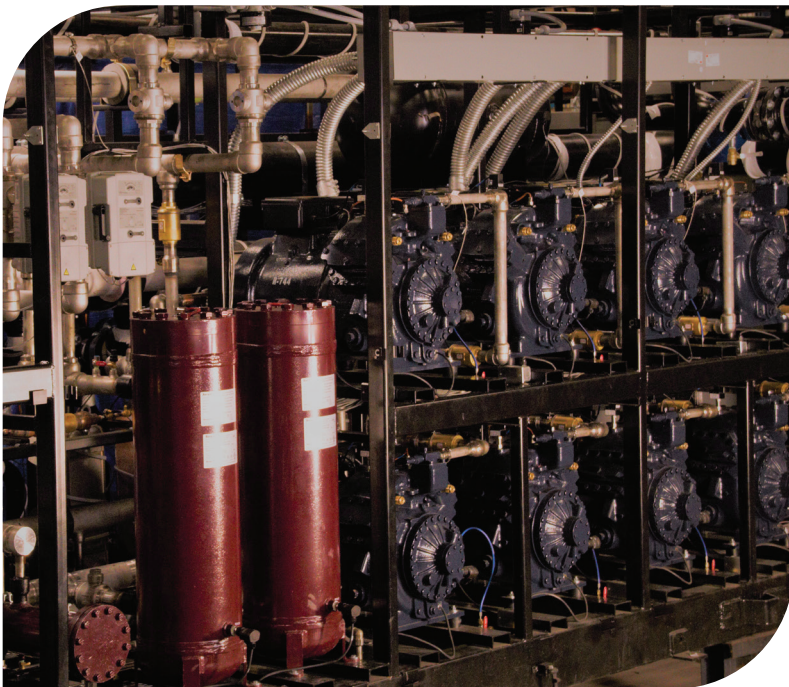
One of the most recognized strengths of Zero Zone is its exceptional service, quality, and support, embodied by professionals whose dedication has been repeatedly acknowledged.

"Their engineering people are fantastic. It doesn't mean they don't make mistakes. The difference is they own the issues, and they fix them. I honestly believe their people are why we went with another Zero Zone unit."

This unwavering commitment ensures that technical issues are resolved promptly, minimizing operational disruptions.

Despite initial challenges with a 300-ton unit, Zero Zone accountability stood out. "They were immediately upfront about any issues and provided schematics and circuit breaker updates," the client noted. Those proactive measures built trust and strengthened the long-term partnership.

Zero Zone efforts to educate clients on troubleshooting fosters self-reliance while maintaining compliance and accessibility for complex issues. Zero Zone Field Service Techs' ability to train and empower others ensures operational continuity, even if key personnel change roles.



300-Ton CO₂ Chiller System - Hillsboro, OR.

"Chillers are our most complicated piece of equipment, even our engineers consider them to be a black box. I count on Zero Zone to help me keep them all running."

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Tailored Solutions for Pharma

Pharmaceutical facilities demand precision and adherence to regulatory standards like GMP (Good Manufacturing Practice). Zero Zone bespoke solutions cater specifically to these needs.

“We’re not a retail customer like these companies are typically used to. We must know why something went wrong. Zero Zone systems allow us to export inputs and outputs into our SCADA systems for analysis and compliance.”

The Zero Zone team’s understanding of pharma’s unique needs extends to its use of Allen Bradley PLCs, which align seamlessly with this clients’ SCADA systems. (SCADA is the acronym for Supervisory Control and Data Acquisition – they are systems that monitor, automate, visualize and log data for real time corrective action.) This compatibility ensures traceability and supports audits by entities like the FDA. As the client emphasized,

“We can’t just have someone fix a problem, we as a pharma company have to know what caused a problem. The FDA demands that of us. That is why Zero Zone engineers and people are so special, they do that better than anyone. We ultimately paid \$150k to \$200k more for Zero Zone because of the responsiveness and skilled engineering support.”

Moreover, Zero Zone flexibility in factory acceptance testing allows clients to ensure system readiness. For example, one facility visited the Zero Zone manufacturing site to verify the setup of a 400-ton chiller, ensuring it met their exact specifications before delivery.

“Zero Zone excels at avoiding one-size-fits-all solutions. In pharma, we inevitably have product recalls or losses that require detailed auditor explanations and Zero Zone supports us with that.”

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Water-Cooled Ammonia Chiller - Louisville, KY.

Reliability and System Redundancy

In pharmaceutical operations, equipment reliability is non-negotiable. The cost of failure is one billion dollars. Zero Zone chillers play a critical role in maintaining systems that are described as the “lifeblood” of the facility, highlighting the catastrophic consequences of failure.

“If we lose refrigerated water, we lose our cold rooms with hundreds of thousands of product in it.”

Zero Zone focus on redundancy ensures uninterrupted operations. With multiple chillers in place, facilities can seamlessly switch between units during maintenance or unexpected failures. Clients report significant uptime improvements with Zero Zone compared to competitors.

“That’s why we bought [so many Zero Zone] systems,”

Challenges, such as leaks in CO₂ systems, are met with swift resolutions. Zero Zone dedication to quality improvement in that area, further reinforces its reputation for reliability.



“CO₂ is still somewhat new. The engineering is difficult. CO₂ is under a lot of pressure, so you are going to have leaks. The issue is finding them quickly and fixing them.”

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Industrial CO₂ Transcritical Parallel Rack

Sustainability and Environmental Impact

The Zero Zone commitment to sustainability aligns closely with the priorities of its pharmaceutical partners, many of whom aim to achieve net-zero carbon goals by 2030.

“We use all clean electricity, and we’re actively reducing our natural gas and water consumption.”

One area of improvement Zero Zone is exploring involves optimizing gas cooler efficiency to conserve water.

“We use millions of gallons of water in the summer. Finding another solution could significantly reduce consumption.”

By addressing these challenges, Zero Zone demonstrates its willingness to innovate in response to environmental concerns.

Furthermore, Zero Zone use of CO₂ as a refrigerant supports broader sustainability goals, as it offers an environmentally friendly alternative to traditional refrigerants. This positions Zero Zone as a forward-thinking partner committed to helping clients meet both operational and environmental objectives.



Transcritical CO₂ Chiller Rack - San Francisco, CA.

“There are very few experts in CO₂ - Zero Zone has some that are special. They are helping us achieve our goal to be carbon neutral.”

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Water-Cooled Ammonia Chiller - Louisville, KY.

Holistic Results and Outlook

Zero Zone partnership with its pharmaceutical clients exemplifies excellence in service, customization, reliability, and sustainability. By addressing specific industry challenges and delivering measurable outcomes, Zero Zone solidifies its role as a trusted partner in the pharmaceutical sector. As one client aptly summarized, "We spent a lot of time vetting chiller options, and I wouldn't hesitate to get another Zero Zone."

- ✓ **Total Cost of Ownership:** Customer initially spent \$200k more on Zero Zone systems suggesting at least an **11.1%** lower total cost of ownership through reliability and reduced downtime.
- ✓ **Uptime:** Customer reported significant reductions in downtime compared to competing systems, achieving near **100%** operational availability.
- ✓ **Service Response Time:** Immediate support ensures issues are resolved swiftly, minimizing impact.
- ✓ **Sustainability Goals:** Customer noted Zero Zone contribution to achieving **clean energy** targets and reducing resource consumption.

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