



CASE STUDY

Compass + RK Industries:

The Art of Kaizen –
Accelerating Time to Ready
for AI Data Centers

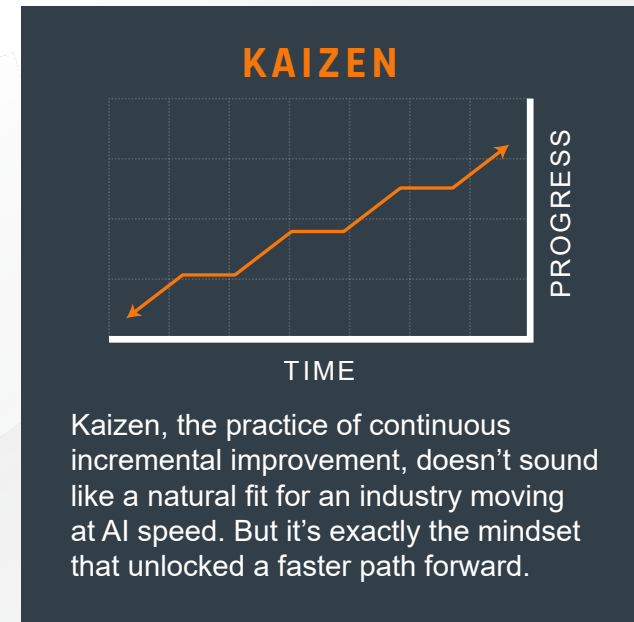


THE CHALLENGE

AI computing is growing at a speed and scale that is unprecedented in the history of technology. With more than \$1 trillion in orders for next-generation GPUs utilizing direct-to-chip (DTC) liquid cooling, hyperscalers must rapidly expand their liquid-cooled, future-ready data centers – and deliver them on an accelerated timeline.

Compass Datacenters identified a critical bottleneck: the traditional processes for producing and installing facility water system (FWS) and technology cooling system (TCS) pipes. These piping systems are the central circulatory system for AI-ready data centers, enabling HVAC and liquid cooling throughout a facility. But slow, laborious design, on-site construction assembly made both the FWS and TCS a significant drag on delivery timelines. Compass believed there was a better way.

At Compass, we don't just "build" data centers; we manufacture them. Our repeatable reference design means approximately 85% of each facility is produced off-site using a standard kit of parts, then assembled on-site for faster, more predictable delivery. We've applied this manufacturing mindset across everything from pre-cast roofing and modular power infrastructure to prefabricated white space modules. Extending it to piping systems was the natural next step, and the key to bringing the same speed and schedule predictability to liquid cooling delivery.



THE PARTNERSHIP

To redesign these piping systems, Compass turned to RK Industries, an industry leader in construction manufacturing, fabrication and building service solutions. With more than six decades of experience and seven integrated business units, RK became Compass' newest closely-coupled partnership – and it is already driving major innovations that accelerate delivery of liquid-cooled data centers.

"I had worked with RK Industries in the past and knew that they would be a 100% culture fit for Compass. They understand the power of modular design, prefabrication and kaizen-driven continuous improvement – all of which are cornerstones of how Compass works. They were the ideal partner for driving efficiencies through prefabricated assemblies and components."

Amy Marks, Senior Vice President, Innovation & Sustainability at Compass Datacenters

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FWS prefabricated piping system ready to be lifted into place.

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FWS pipe rack assembly.

THE SOLUTION

In 2024, Compass began working with RK Industries to re-architect every aspect of how piping systems are designed, manufactured and installed.

Fundamental Piping Redesign

RK and Compass collaborated to create two innovative first-of-kind fabricated piping systems: the FWS and TCS pipe racks. Both products drive major efficiencies at every stage of manufacturing and installation.

Kaizen-Driven Design Continuous Improvement

The teams applied kaizen principles to optimize design, manufacturing and installation methodologies – driving enhancements to speed, sustainability and quality.

Off-Site Manufacturing at Scale

RK and Compass accelerated production through the creation of two RK factories dedicated to Compass data center equipment.

“Together, Compass and RK have completely re-invented multi-trade racks from the ground up to achieve faster time to ready for data centers. This isn’t just standardization of components. It’s standardization of entire assemblies so that every step of the process is dramatically faster. Faster design enhancements. Rapid off-site manufacturing. And then on-site installation that takes a fraction of the time – all with higher quality and sustainability.”

Marc Paolicelli, Chief Customer Officer and Senior Vice President of RK Industries



First delivery of FWS racks to Compass' Phoenix campus.

THE IMPACT

Fastest Liquid Cooling Installation

Compass can now install a liquid cooling loop within one week – a fraction of the time required by traditional methods.

Production at Scale

The collaboration has significantly ramped production capacity to meet the large-scale AI deployments of hyperscalers, including accelerated installation of the award-winning Vertiv™ CoolPhase Flex hybrid cooling solution co-developed by Vertiv and Compass Datacenters to support high-density computing environments.

Higher Quality and Sustainability

In addition to faster timelines, the prefabricated piping systems deliver higher quality, uptime, fungibility and sustainability to hyperscale customers.

“One of the biggest impacts of our collaboration with RK is speed of installation, which is traditionally laborious and full of trial and error. RK eliminated all of that inefficiency by dedicating a team member to be on-site at Compass facilities working side-by-side with our contractors. This created a real-time feedback loop that optimized the design in ways that enabled on-site assembly to go at lightning speed. This is the power of kaizen, pre-fabrication and close-coupled partnerships in action every day.”

Aarth Jarmarwala, Principal, Integrated Delivery and Global Delivery at Compass Datacenters.

“This partnership is a dream for RK’s entire team because Compass is so receptive to ideas that drive improvements. RK truly has an all-hands-on-deck approach to innovation. One of our machinists recently suggested a design change that would accelerate production of a key piping component on the shop floor. We discussed it with the Compass team and put it into production in a matter of days. The impact of that change has been immediate and significant. That is just one example from so many. It’s a testament to the strength of this partnership and the commitment of both companies to continuous improvement.”

Donnie Hirschfield, RK Steel

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TCS pipe rack assembly.

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Prefabricated piping systems assembly at RK's dedicated production facility for Compass.

FROM PARTNERSHIP TO PRODUCTION

- **2024:**
Compass and RK begin piping systems collaboration
- **Months Later:**
Complete re-architecture of FWS and TCS design, manufacturing and installation
- **Two New Factories:**
RK opens dedicated production facilities for Compass
- **One Week:**
Time to install a liquid cooling loop – a fraction of the traditional timeline

“There are so many aspects of this partnership that I am proud of, but one of the biggest is the way this collaboration with Compass is driving job creation. There is a misconception that data centers don’t create jobs, but nothing could be further from the truth. Our work with Compass is generating hundreds of high-quality advanced manufacturing jobs, and it has enabled us to build a new factory in Colorado dedicated to production for Compass. Data centers are a major engine for our economy.”

Rick Kinning, CEO of RK Industries

LEARN MORE

Want to know more about how Compass is accelerating the production of AI-ready data centers?

Visit <https://www.compassdatacenters.com/100-year-campus/>



Data centers done differently.

www.compassdatacenters.com