# JTEKT Thermo Systems Pioneers Sustainability for Industrial Manufacturing

Japanese industrial heating systems manufacturer migrates its HPC operations to Rescale to drive sustainability efforts while reducing costs and accelerating the pace of computational research by 75 percent

## Case Study

**JTEKT**

**Headquarters:**
Nara, Japan

**Industry:** Industrial Manufacturing,
Heating Systems

**Founded:** 1967

**50%
Fewer
Experiments**

**75% Faster
Simulation Time**

### Key Results

» Improve heating systems with fast and accurate simulations to address growing demand to lower power consumption and reduce greenhouse gas emissions

» Reduce the number of prototype experiments needed to verify design improvements by more than 50 percent

» Reduce simulation time for induction heating analysis by as much as 75 percent

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JTEKT Thermo Systems has been a world-leading manufacturer of industrial heating systems since 1967. Throughout its history, innovation has been the essential component of the organization's success.

In order to remain at the forefront of its industry, JTEKT must continually improve its heating systems, ovens, and furnaces for the automotive, semiconductor, energy, and communications markets.

But now JTEKT faces perhaps its biggest challenge. It must make its industrial heating systems cleaner and more energy efficient. Any breakthroughs in how manufacturers use energy-intensive heating systems can mean a big step forward in creating greener industrial processes.

At the same time, it must continue to drive down its engineering and manufacturing costs while building even more effective heating systems.

But by partnering with Rescale, the Osaka-based company can now innovate much more quickly and efficiently, speeding its pace of innovation by as much as 75 percent.

## TECHNOLOGY CHALLENGES

Like JTEKT, manufacturing companies across industries are striving to drive innovation efforts to reduce greenhouse gas emissions and lower power consumption. Such initiatives are critical to meeting environmental needs and consumer demand for more sustainable manufacturing operations.

At the same time, digital simulation and analysis models that guide modern research are becoming increasingly sophisticated, giving organizations new tools for finding answers to today's most difficult climate challenges.

JTEKT currently conducts analysis in four areas: thermo-fluid analysis, structural analysis, heat treatment analysis, and induction heating analysis. Such computational engineering requires highly parallel calculations on the fastest computing architectures possible. In other words, supercomputers.

"We have always been industry leaders, focused on making the best heating systems in the world," says

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*"I don't think I have ever experienced an IT vendor that provides such detailed and prompt consultation. We appreciate that. They respond immediately."*

— Ryosuke Yamamoto, Team Leader, Heat Treatment Equipment Development, JTEKT

Ryosuke Yamamoto, manager of JTEKT's industrial heating unit. "But in recent years, the market and our customers have been demanding carbon neutral products. This has meant we need to speed up the product development process with digital engineering. This will be critical in helping find breakthrough innovations that reduce our customers' carbon footprint."

## HOW RESCALE HELPED

JTEKT adopted the Rescale Platform in 2018 to make it possible for its research and engineering teams to quickly connect to the world's most powerful high performance computing systems and cutting-edge software. At the same time, Rescale provides an easy way for JTEKT's IT team to automate service requests for access to computing resources, track usage, and ensure cost-controls across multiple teams.

Rescale is also helping JTEKT run more sustainable computing operations. Rescale's platform intelligence makes it easy for the company's IT team to identify the most energy-efficient computing services.

"JTEKT is committed to helping build a sustainable society," Yamamoto says. "We are working not only on larger scale analysis but also on speeding up and improving the efficiency of analysis using AI. And Rescale helps us easily access the best hardware and software computing resources we need to drive those innovations."

In addition, Rescale supports the most important international security and compliance standards. Rescale consultants helped JTEKT set up automated security and access policies tailored to their specific needs.

## RESULTS

With Rescale, JTEKT is innovating faster and more cost-effectively, boosting its efforts to build more sustainable manufacturing technologies.

Large-scale calculations that previously took the company's research teams four days to run in its on-premises data center now take only a day, reducing their downtime waiting on calculations by 75 percent.

JTEKT's researchers also only need to conduct half as many prototype experiments to verify new designs, helping engineering teams identify carbon-reducing innovations more quickly.

In its search for cleaner, more efficient manufacturing, JTEKT relies on Rescale to provide all the computational power and software it needs to re-imagine what's possible.

*"If we had to build an HPC cluster in our on-premises environment, the installation and maintenance costs would have been a major upfront investment. We just don't have that kind of expertise on the team."*

— Ryosuke Yamamoto, Team Leader, Heat Treatment Equipment Development, JTEKT