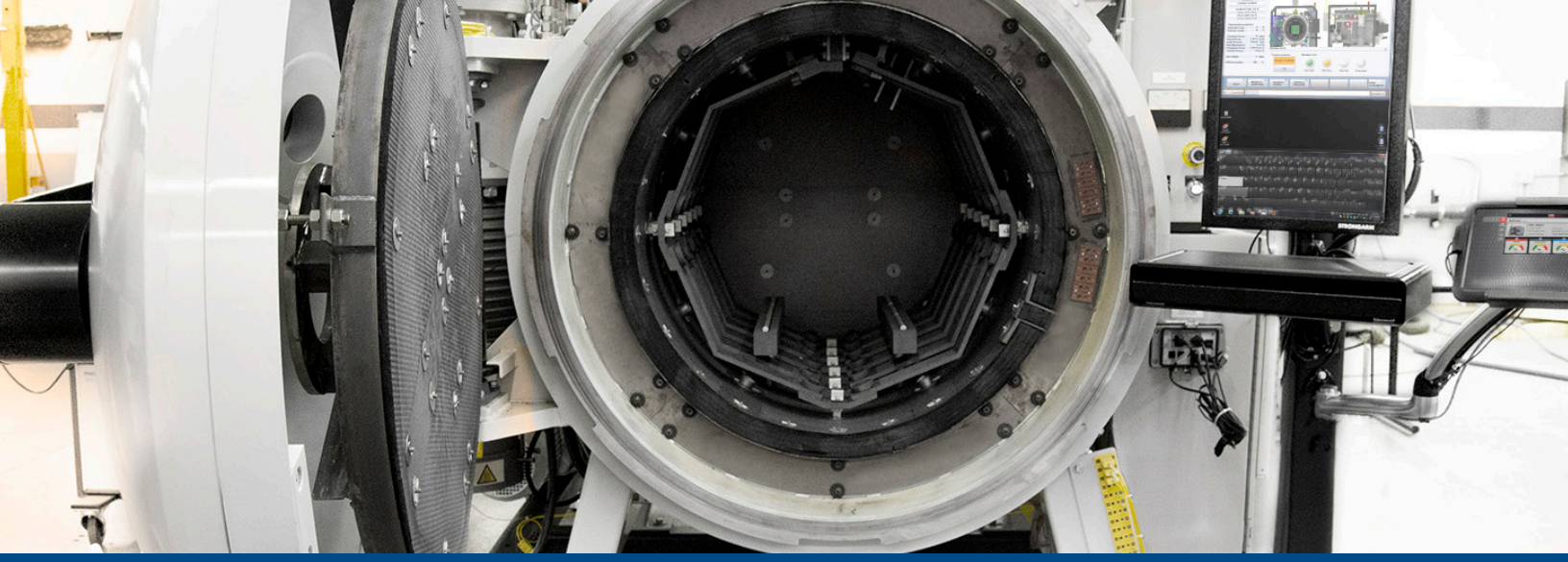

Propelled to Victory: How Kamijima Heat Treatment Used Craftsmen and Advanced Technology to Heat Treat Olympic-Quality Parts

- Improved cooling speeds allow them to cost-effectively heat treat small batches
- Integrated their heat-treating system with predictive maintenance technology for maximum equipment performance
- Optimized plant layout with the vacuum furnace's small footprint

Challenge:
Kamijima Heat Treatment Co., Ltd., handles as many as 1,000 orders a week for critical projects all over Japan. This includes processing the axles on the Jamaican Olympic Team's bobsled for the 2018 Winter Games. While they already have one Ipsen vacuum furnace from 1971 that is still running strong, improved cooling speeds would allow them to cost effectively treat small loads.

Action:
Gained the flexibility to run small batches as needed and in a more cost-effective manner by purchasing Ipsen's TITAN® vacuum heat-treating system, which also featured the latest thermal processing technology: predictive maintenance software.

The Challenge

It is 1988. A blur of green and yellow flashes by, cutting through the frigid winter air amid cheers, speeding into the annals of Olympic history.

The Jamaican Bobsled Team's story is an iconic tale of strength and resilience. While there are few who are not familiar with this story (or seen the movie), what you might not know is the runner carriers and surrounding parts must first be heat treated so they can endure multiple stresses, including the cold and high speeds, as well as maximize performance.

For Kamijima Heat Treatment Co., Ltd., heat treatment is a true art form. With master craftsmen, more than 50 years of experience and deeply honed skills, perfecting parts for their customers is almost second nature. So when Tokyo's Ota Ward (i.e., one of 23 municipalities) and a group of factories located there – including Kamijima Heat Treatment – were chosen to assist with making a bobsled for the Jamaican Olympic Team for the 2018 Winter Games, they were up to the challenge.

Kamijima Heat Treatment already had one Ipsen vacuum furnace that they installed in 1971. While it was still running strong and performing well, improved cooling speeds would allow them to cost effectively treat small loads. As they contribute to critical projects for companies all over Japan – handling as many as 1,000 orders a week – they also wanted to invest in the latest technologies, including predictive maintenance software.

In addition, with a strong focus on also providing manufacturing solutions to the Aerospace industry, they required a vacuum heat-treating system that was capable of meeting applicable Nadcap and AMS 2750 requirements without adding numerous optional features. They also wanted to ensure they had the flexibility to handle a variety of batch sizes both now and into the future.

The Winning Outcome

A compact vacuum furnace that is part of a standard global platform, the TITAN® H2 was the perfect solution. Its small footprint fit perfectly into the available space, and with the Japanese government encouraging companies to incorporate the Internet of Things (IoT) into their operations, the furnace's integration with the PdMetrics® software platform for predictive maintenance was a unique advantage.

With the PdMetrics platform securely connected to a network of integrated sensors on the furnace, Kamijima Heat Treatment is able to view real-time diagnostics, as well as ensure maximum equipment performance. It also builds upon existing maintenance programs and provides automatic maintenance reminders based on furnace performance and component usage. As a result, they are able to efficiently, and cost-effectively, reduce unplanned downtime.

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As a company ahead of the curve – being the first company in Japan to obtain JIS (Japanese Industrial Standards) certification in quenching and tempering, as well as the first to obtain ISO 9001 and ISO 14001 – the ability to utilize advanced predictive maintenance technology gives Kamijima Heat Treatment the tools needed to provide their customers with cutting-edge results.

The furnace also provided other technological advantages. For example, with remote digital recording, they could now receive Quality Control (QC) reports at the end of the cycle in a single, easy-to-read PDF. As a result, all of the necessary information – including dates, times, cycle names, a copy of the recipe and more – is saved in the PDF file, allowing them to operate more efficiently and save valuable time reviewing past data.

Finally, as a Nadcap-accredited facility that processes parts for the Aerospace industry, the TITAN better positioned them to get new projects as its standard version is capable of meeting applicable AMS 2750 requirements. They also found that the furnace's size and speed not only gave them the flexibility to run small batches as needed, but it was also more cost-effective for them to heat treat those loads in the TITAN.

Among many other components on the bobsled, Kamijima Heat Treatment is responsible for processing the axles that hold the runners. As a company built on artisanship and years of knowledge, they were able to apply their expertise and reduce warping to 0.3 mm or less per meter of steel (compared to the industry average of 1 mm). Achievements such as these are essential in a sport where milliseconds can make the difference between victory and defeat.

Much like the Jamaican Bobsled Team, Kamijima Heat Treatment continues to push forward, defying all odds in an industry that, every day, is becoming more integrated and focused on machine technology. Yet they continue to remain at the top of their field with their perfected blend of advanced equipment and skilled experts that provide artisan-like results, propelling their customers forward toward success.

Learn more at www.IpsenUSA.com/TITAN or www.IpsenUSA.com/PdMetrics.

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