CASE STUDY

Chentronics®
IGNITING INNOVATION

RELIABLE IGNITION RESTORED

Enhancing Igniter Performance in Power Generation

Executive Summary

Chentronics helped two major North American power plants resolve a long-standing igniter start-up issue that had caused frequent operational disruptions. By applying proven expertise in ignition technology and addressing key pain points, Chentronics delivered a tailored replacement system that significantly enhanced reliability and performance.

Following the targeted igniter replacements, the sites achieved:

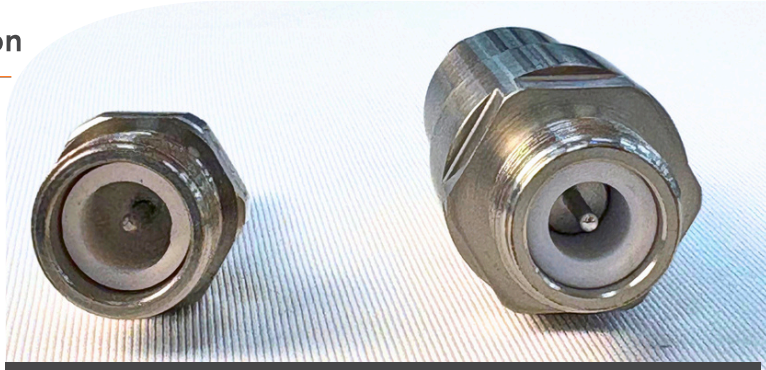
- Eliminated recurring start-up failures and costly igniter replacements.
- Delivered a robust, moisture-resistant design that extended equipment lifespan.
- Reduced downtime and maintenance costs through improved system reliability.
- Ensured seamless implementation with no operational disruptions.
- Increased customer satisfaction through exceptional product quality, competitive pricing, and on-time delivery.

This case highlights how targeted engineering solutions drive measurable results and long-term operational improvements for end users.

The Challenge

The two power plants were experiencing frequent igniter start-up failure that disrupted normal operations. Key issues included moisture buildup inside the igniter, fragile spark gaps prone to failure, moisture leaking into electrical connections, and deterioration of insulating materials. These problems compromised ignition consistency and system reliability.

Despite repeated efforts to rectify the ignition performance with the original manufacturer, the start-up failures continued prompting the sites to reach out to Chentronics.



Side-by-side comparison of igniter tips—original hardware (left) vs Chentronics upgraded hardware (right). The upgrade played a key role in minimizing missed starts and lowering the frequency of igniter replacements.

Our Approach

Robust Igniter Design and Increased Energy Output

To overcome the issues caused by moisture and fragile spark gaps, Chentronics developed a more durable igniter with a larger spark gap and higher energy delivery. This approach ensured reliable ignition even under adverse environmental conditions, effectively eliminating start-up inconsistencies.

Enhanced Materials and Manufacturing Quality

Recognizing the deterioration of ceramic components and insulators, the team upgraded materials and improved production processes. This resulted in longer-lasting igniters that resist moisture damage and physical wear, reducing the frequency of replacements and maintenance.

Sealed Connectors and Contamination Prevention

To prevent moisture and contaminants from affecting the igniter connections and surrounding enclosures, a sealed connector system was introduced. This innovation protected critical electrical interfaces, ensuring consistent performance and reducing the risk of environmental degradation.

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Measurable Outcomes

Following the correction:

- Achieved zero start-up failures on initial implementation, preventing immediate disruptions.
- No igniter tip replacements required after several months in service, significantly lowering repair frequency.
- Reduced maintenance costs and downtime, allowing teams to focus on preventive maintenance.
- Enhanced operational reliability, ensuring greater consistency across both sites.
- Earned positive customer feedback on improved product durability, pricing, and service quality.

These results translated directly into smoother plant operations with few interruptions, improved equipment longevity, and notable financial benefits. While precise start frequency data is not available, even under a conservative assumption of once per week, one site reduced replacement cost from over ***$2 million*** to just **$260,000** by minimizing unplanned downtime and reducing replacement frequency. Even under this cautious assumption, the project achieved a strong **ROI approaching 700%**, demonstrating the immense value of investing in quality engineering and targeted solutions.

Key Takeaway

This case underscores how thoughtful design and engineering play a crucial role in solving ignition reliability issues. By addressing key failure points with quality materials and targeted improvements, the solution helped the sites achieve lasting operational benefit.

Why Chentronics?

Chentronics, a Koch Engineered Solutions company, combines deep ignition expertise with a commitment to engineering excellence and customer-focused innovation. Our proven track record in solving complex ignition challenges ensures tailored solutions that enhance reliability and operational efficiency. Partnering with Chentronics means gaining a trusted collaborator dedicated to your teams success.

Explore how Chentronics' proven expertise can support your ignition goals.