

# Enhancing Precision & Efficiency with MWI EDM Graphite

Case Study - February 2025

## COMPANY

Pro Machine is a precision manufacturing company specializing in producing high-quality parts for leading oil and gas companies.



## TESTIMONIAL

"MWI EDM graphite has significantly improved our machining efficiency, reducing electrode wear and enhancing precision."

~ H. Namink

## OVERVIEW

We utilize EDM graphite from MWI as a key material in our machining processes. EDM graphite plays a crucial role in creating precision electrodes that allow us to manufacture highly accurate and durable parts. Its excellent thermal and electrical conductivity, combined with superior machinability, makes it an essential material for our production needs.

## CHALLENGES AND NEEDS

Before integrating MWI EDM graphite, Pro Machine faced several challenges:

- **Inconsistent Material Quality:** Variability in graphite grades affected machining precision and tool life.
- **Efficiency Issues in EDM Machining:** Some graphite materials wore out quickly, leading to increased downtime and costs.
- **Surface Finish and Accuracy:** Achieving tight tolerances required in oil and gas components was challenging with other graphite sources.

## SOLUTION

Pro Machine has been using MWI's EC-15 and HK-6 on a regular basis to overcome these challenges. The material's superior properties—excellent thermal and electrical conductivity, high machinability, and consistent quality—proved essential in improving EDM machining operations.

## FUTURE PLANS

Looking ahead, Pro Machine plans to expand its use of MWI graphite into additional machining applications, exploring new grades and formulations to further enhance efficiency and product quality.



[mwi-inc.com](http://mwi-inc.com)



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## IMPLEMENTATION

The transition to MWI EDM graphite was smooth, requiring minimal adjustments to Pro Machine's existing EDM processes. Collaboration with MWI's technical team ensured the selection of the most suitable graphite grades for various applications.

## ADVANTAGES

- EC-15 is an ultra-fine grain isotropic graphite that provides fine detailed EDMing while maintaining high tolerances. EC-15 has been a staple in the fabrication of detailed injection molds for 40 years. EC-15 is available in a large master block giving you the option of one-electrode burns of large work pieces. EC-15 provides excellent finish, high detail burns.
- HK-6 is a premier grade of ultra-fine graphite, designed for ultra-high definition and excellent edge wear resistance. The special properties will give good MRR rate/wear ratios and high-quality surface finishes down to 16 VDI. Due to its special machining properties, it can be used in high-quality mold making, aerospace and for fine detailed rib forms.

## QUANTIFIABLE RESULTS

Since adopting MWI graphite, Pro Machine has experienced substantial operational benefits including:

- **Increased Electrode Life:** Longer-lasting electrodes minimize downtime and replacement costs.
- **Improved Precision:** Greater consistency in graphite quality allows for better surface finishes and tighter tolerances.
- **Significantly Reduced Machining Times:** Improved productivity with faster and more efficient machining processes.
- **Cost Savings:** Lower material waste and extended tool life reduce expenses on each project.

## CONCLUSION

By using MWI graphite, we achieved improvement in accuracy, reducing rework and ensuring on-time delivery. Our clients are highly impressed, strengthening our long-term partnership.

Explore MWI's graphite material specification sheet to simplify your decision-making process. Compare key properties like flexural strength, hardness, density, and resistivity to determine the ideal electrode material for your applications.



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