

Corvallis startup creates technology to save hundreds of millions for specialty metals producers

A Corvallis startup says it has developed technology to revolutionize the way titanium and other specialty metals are produced, saving hundreds of millions in energy costs and improving manufacturing safety.

The company, KW Associates, recently received \$150,000 from Oregon BEST, the nonprofit research center focused on clean technology innovations, officials at the research center said. The investment will enable KW Associates to work with researchers at Oregon State University, including Kyle Niemeyer, an assistant professor of mechanical engineering.

Niemeyer and his associates will be conducting studies to better understand KW Associates' technology to improve the efficiency and safety of producing ingots of specialty metals in Vacuum Arc Remelting (VAR) furnaces.

"Oregon BEST is enabling us to cross the 'valley of death' threshold that all startups face by helping us obtain independent validation of our technology from a third party and increase our capabilities offered to end users," said Paul King, president and CEO of KW Associates. "They are also introducing us to investors, which is important to us because we're poised to address what could be a very large market so we can be very profitable, but this requires investment. We can either go slow or go quick, and I want to go quick."

KW Associates' patented technology, which some call "the MRI of industrial processes," was developed at the U.S. Department of Energy. In 2013, while still under development, the technology won an R&D 100 Award, bestowed annually to the top 100 innovations worldwide.

The technology is an add-on that can improve the performance of Vacuum Arc Remelting furnaces, which were developed in Albany, Ore., in the 1940s and have changed little since then.

The furnaces generate an electric arc that melts a consumable electrode, burning off impurities and creating a large ingot of a specialty metal that is then sold to manufacturers.

Until KW Associates' technology it was impossible to see the electric arc inside the furnace, which led to wasted electricity and buildup on the ingot surface that had to be removed afterward.

KW Associates' Arc Position Sensing technology provides a way to "see" inside a Vacuum Arc Remelting furnace. When that data is coupled with control techniques, manufacturers will have better control of the arc, which will reduce energy costs and improve the quality of the ingots, Oregon BEST officials said..

The technology also can improve furnace safety by monitoring and alerting operators when the arc forms between the electrode and the side wall of the furnace, instead of between the electrode and the ingot. This condition, called side-arcing, has led to catastrophic explosions of Vacuum Arc Remelting furnaces

"Our technology could save 40 to 50 percent of the energy currently lost in the use of these furnaces, while improving ingot quality, and reducing much of the \$800 million in lost revenues through material waste and associated electrical inefficiencies each year," King said.

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