MesoCoat Inc., an emerging leader in the material sciences and surface engineering industries, has won AMM’s award for Best Process Innovation for its creation of CermaClad corrosion- and wear-resistant alloy clad pipe for energy producers.

The company, a subsidiary of Miami-based Abakan Inc., introduced its line of CermaClad seamless, metallurgical bonded pipe in the spring, when it opened its first full-scale pipe cladding facility in the Cleveland suburb of Euclid. The plant’s high-speed, large-area fusion cladding technology produces a high-quality product 40 times faster than weld overlay processes, and at significantly lower capital and fixed costs compared with other production alternatives.

“Our new facility enables us to demonstrate continuous, automated production of 12-meter pipe segments, and is a major milestone towards realizing our mission to offer cost-effective life-of-asset protection in an effort to reduce the estimated $2.2 trillion wasted worldwide as a result of preventable corrosion and wear,” MesoCoat chief executive officer Andrew Sherman said.

MesoCoat said that corrosion- and wear-resistant materials are necessary to produce oil and gas from these caustic reserves. Oil and gas producers have the option to use either very expensive alloy steel products or clad steel material, where carbon steel is clad with approximately 3 millimeters of corrosion- and/or wear-resistant alloys.

The company said the metal cladding industry has seen little to no innovation over the past 40 years, and extremely slow production processes such as weld-overlay/laser-cladding are still being used for the protection of metals in extreme environments, especially on the inside of pipe used for the transportation and production of increasingly caustic fluids.

CermaClad production is faster than current technologies, is 20 percent cheaper and provides better corrosion and wear protection, according to the company. It uses a unique metal-cladding process that employs a high-intensity light source to fuse various anti-corrosion and anti-wear materials onto metal substrates at a 40-times higher productivity rate, with better metallurgical properties (50-percent higher bond strength, lower corrosion and wear rate, minimal dilution and heat-affected zone, and a smooth and seamless surface), MesoCoat said.

“Our CermaClad high-speed, large-area fusion cladding technology is truly disruptive and offers up to two orders of magnitude improvement in productivity and performance and more importantly reduces risks associated with metal structures that are used in extremely challenging environments, such as offshore oil and gas production,” Sherman said.

CermaClad technology uses a high-intensity plasma arc lamp to rapidly melt, fuse and metallurgically bond corrosion-resistant alloy (CRA) and wear-resistant materials to metal substrates, including pipe. The technology addresses the large and increasing demand-supply gap for CRA-clad pipe in general and, more importantly, addresses the huge demand for large-diameter and thick-walled CRA-clad pipe, which are extremely difficult to manufacture, inspect, reel and install using existing technologies, MesoCoat said.

Shortly after the one-line facility went online in Euclid, Abakan announced plans to construct a large-scale, four-line clad pipe manufacturing plant in Brazil. The facility will help meet the demand for corrosion-resistant clad pipe to enable the safe and efficient production of oil in Brazil, where more than 80 percent of oil fields are highly sour. The decision to build a plant in Brazil was driven by the requirements of Abakan’s technology development partner, Petróleo Brasileiro SA, along with anticipated demand from other Brazilian energy and mining companies that have expressed interest in Abakan’s cladding solutions as a means of reducing capital and operating costs in some of the world’s most challenging corrosive and abrasive environments.

CermaClad has been the recipient of several other prestigious awards in recent months, including the “Subsea Pipeline Technology of the Year” award by the Pipeline Industries Guild. In accepting the AMM Award for Steel Excellence, Abakan chief executive officer Robert Miller said, “This latest award further validates the significant impact that our CermaClad technology can have on improving production times, quality, cost efficiencies and deepwater installation of clad pipe, greatly benefiting the rapidly growing $4-billion metal cladding industry. Global oil and gas capital expenditure is increasing at the rate of 15 to 20 percent per year.

BIL BECK