

SCIAYK INC

EBAM®



ELECTRON BEAM ADDITIVE MANUFACTURING (EBAM®) SYSTEMS

BEST METALS FOR SCIAYK EBAM SYSTEMS:

- ▶ Titanium
- ▶ Titanium alloys
- ▶ Inconel 718, 625
- ▶ Tantalum
- ▶ Tungsten
- ▶ Niobium
- ▶ Stainless Steels (300 series)
- ▶ 2319, 4043 Aluminum
- ▶ 4340 Steel
- ▶ Zircalloy
- ▶ 70-30 Copper Nickel
- ▶ 70-30 Nickel Copper



Metal Additive Manufacturing | 3D Printing What Do You Want To Make Today?

PRINT THE FUTURE TODAY

Sciaky's Electron Beam Additive Manufacturing (EBAM®) technology is the link that enables you to go from old, inefficient manufacturing methods to the new digital era. Come along. We'll show you how.

POWERFUL, INNOVATIVE AND VERSATILE

Sciaky's EBAM Metal 3D Printing Systems are now available in a wide range of models to meet your budget and application requirements. All systems come equipped with **Sciaky's IRISS® Closed-Loop Control technology**—ensuring consistent and repeated quality, part-after-part.

Sciaky's EBAM Systems use an electron beam gun to deposit metal, layer-by-layer, until the part reaches near-net shape. This revolutionary process allows you to save up to 80% on expensive raw materials like titanium, with very minimal waste. Plus, EBAM provides an unrivaled build rate of 7 to 20 pounds of metal per hour, making it the most cost-effective 3D printing process in the world for producing large-scale metal parts.

ADVANCE YOUR BUSINESS

Sciaky's turnkey EBAM Systems bring value throughout the entire product life cycle.

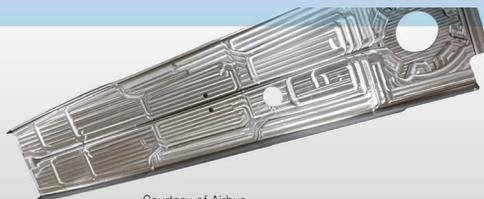
Pre-Production: Create experimental metal prototypes faster than ever before and get a leg up on your competition.

Production: Additively manufacture metal parts (in your own facility) with significantly reduced machining time, material costs, and lead time compared to subtractive manufacturing.

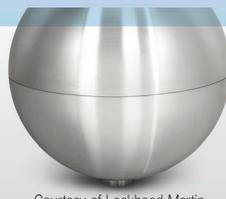
Post-Production: Repair or remanufacture damaged and obsolete metal parts on-site so you can extend various components' service life.

1-888-654-9353

productionengineering.com



Courtesy of Airbus



Courtesy of Lockheed Martin



SCIAKY'S EBAM® SYSTEMS PROVIDE UNRIVALED SCALABILITY & FLEXIBILITY

EBAM 68

Chamber Dimensions:

68" (1727 mm) x
68" (1727 mm) x
110" (2794 mm)

Work Envelope:

28" (711 mm) wide x
25" (635 mm) deep x
63" (1600 mm) high

EBAM 88

Chamber Dimensions:

88" (2235 mm) x
88" (2235 mm) x
110" (2794 mm)

Work Envelope:

48" (1219 mm) wide x
35" (889 mm) deep x
63" (1600 mm) high

EBAM 110

Chamber Dimensions:

110" (2794 mm) x
110" (2794 mm) x
110" (2794 mm)

Work Envelope:

70" (1778 mm) wide x
47" (1194 mm) deep x
63" (1600 mm) high

EBAM 150

Chamber Dimensions:

150" (3810 mm) x
150" (3810 mm) x
120" (3048 mm)

Work Envelope:

110" (2794 mm) wide x
62" (1575 mm) deep x
62" (1575 mm) high

EBAM 300

Chamber Dimensions:

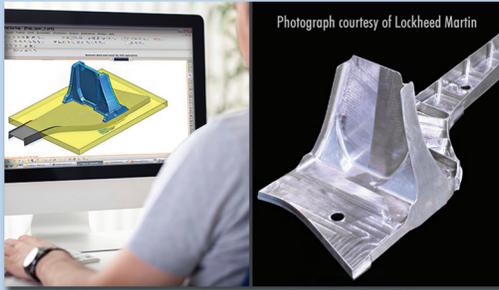
300" (7620 mm) x
108" (2743 mm) x
132" (3353 mm)

Work Envelope:

228" (5791 mm) wide x
48" (1219 mm) deep x
48" (1219 mm) high

To learn about Sciaky's patented technology, Visit www.productionengineering.com

▶ SCI AKY'S ELECTRON BEAM ADDITIVE MANUFACTURING (EBAM) TECHNOLOGY: HOW DOES IT WORK?



Starting with a 3D model from a CAD program, Sciaky's fully-articulated, moving electron beam gun deposits metal (via wire feedstock), layer by layer, until the part is built and ready for finish machining. Deposition rates typically range from 7 to 20 lbs/hr (3 to 9 kg/hr), depending upon part geometry and the material selected.

The EBAM package provides a precisely controlled beam geometry that produces superior energy distribution on the melt pool and wire for great repeatable performance. Requiring very little maintenance, the EBAM filaments can be changed out in 10 minutes at the end or beginning of any chamber cycle.

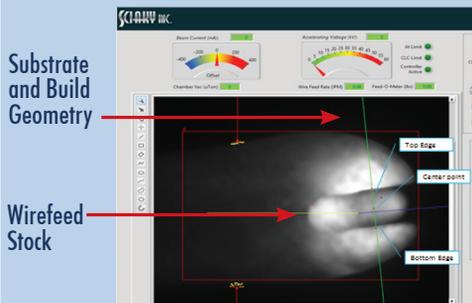
▶ PARTS CREATED WITH SCI AKY'S ELECTRON BEAM ADDITIVE MANUFACTURING (EBAM) TECHNOLOGY:



Photograph: Courtesy of Airbus

Photograph: Courtesy of Lockheed Martin

▶ IRISS® CLOSED-LOOP CONTROL TECHNOLOGY PROVIDES REAL-TIME ADAPTIVE CONTROL



IRISS is a patented suite of sensors, software logic, and CNC controls that monitors key metal deposition parameters in order to make real-time adjustments to the deposition inputs. The data collected from the process is quantified and digested by our IRISS software algorithms. The outputs from the software will change deposition parameters such as EB power, wire feed rate, and CNC motion profiles. These adjustments are made dozens of times per second in order to guarantee that every ounce or gram of metal deposited experiences the same transition from wire, to liquid, to solid. The result is a consistent production of high quality parts, from the first part to the last.

To learn more about Sciaky's Electron Beam Additive Manufacturing (EBAM) Technology, call us at 888-654-9353 or email sales@productionengineering.com



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