

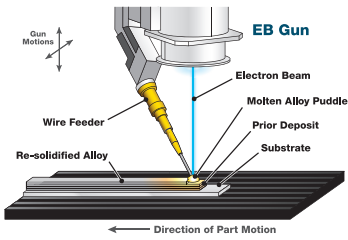
SCIAYK INC.

EBAM®



THE ELECTRON BEAM ADDITIVE MANUFACTURING (EBAM®) 110 SYSTEM

SCIAYK'S EBAM PROCESS PROVIDES HIGH DEPOSITION RATES FOR LARGE-SCALE PARTS.



Sciaky's EBAM 110 System

1+(877)450-2518

sciaky.com

To learn about Sciaky's patented technology, visit www.sciaky.com/patents

Metal Additive Manufacturing | 3D Printing Do It All With The EBAM® 110

DRIVING INNOVATION

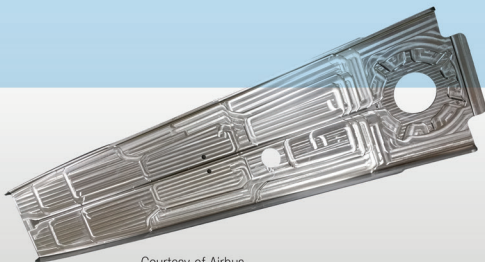
Sciaky's Electron Beam Additive Manufacturing (EBAM) 110 System is one of the most versatile advanced manufacturing systems on the market. It provides significant advantages in energy efficiency, part handling, motion, cycle time, and accuracy. It is also an excellent choice for applications containing refractory alloys and dissimilar materials.

SCIAYK'S EBAM SYSTEM TECHNICAL DATA:

- ▶ 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
- ▶ Nominal Part Envelope—106" (2692 mm) wide x 47" (1194 mm) deep x 63" (1600 mm) high
- ▶ High Efficiency Pumping—Chamber Hard Vacuum (5 x 10⁻⁶ Torr)
- ▶ Power Level up to 42 kW—60 kV
- ▶ Internal Boom Mounted Gun with High Resolution Optics & Servo Gun Tilt Axis
- ▶ X, Y & Z Servo Axes with Multiple Part Positioner Options
- ▶ CNC Control—Joint Scanning and Digitizing System
- ▶ Wirefeed with Motorized Wire Nozzle—Dual wirefeed optional
- ▶ Electron Beam Additive Manufacturing (EBAM®) Package with Closed-Loop Control (CLC)

SCIAYK'S 60/60 EB MOVING GUN—PRECISION & PERFORMANCE

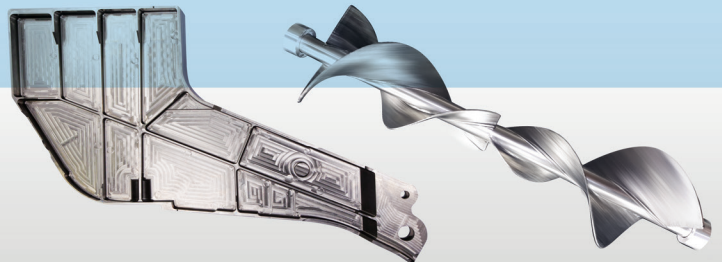
Sciaky's exclusive 60/60 electron beam gun can produce a high energy beam intensity profile, comparable to those produced by high voltage equipment. It also has superior operational stability and easy access to gun components during filament change—making this gun package the most advanced in its class. The gun can be programmed in various mechanical orientations with the standard servo gun tilt arrangement.



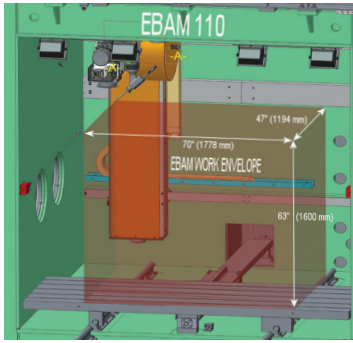
Courtesy of Airbus



Courtesy of Lockheed Martin

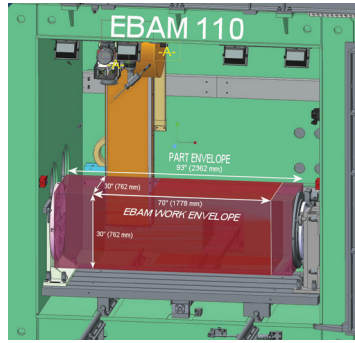


SCIAKY'S WORK ENVELOPE OPTIONS FOR THE EBAM® 110 SYSTEM



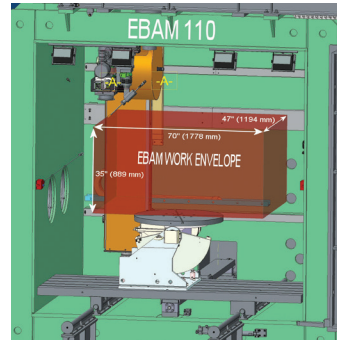
BASE WORK ENVELOPE WITH SINGLE WIREFEED

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



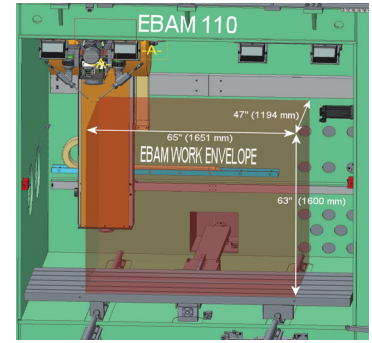
OPTION 1: WORK/PART ENVELOPE WITH HEAD/TAIL STOCK ASSEMBLY

70" (1778 mm) wide work envelope & 93" (2362 mm) wide part envelope, x 30" (762 mm) deep x 30" (762 mm) high



OPTION 2: WORK ENVELOPE WITH ROTARY/TILT POSITIONER

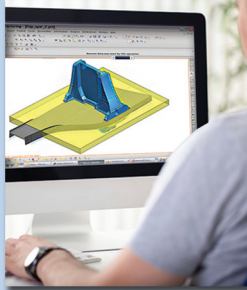
70" (1778 mm) wide x 47" (1194 mm) deep x 35" (889 mm) high



OPTION 3: BASE WORK ENVELOPE WITH DUAL WIREFEED

65" (1651 mm) wide x 47" (1194 mm) deep x 63" (1600 mm) high

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



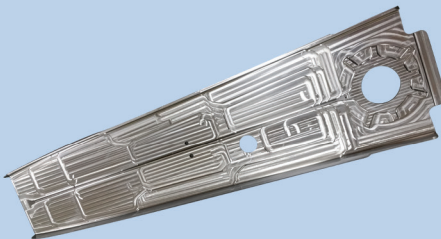
Photograph courtesy of Lockheed Martin



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.

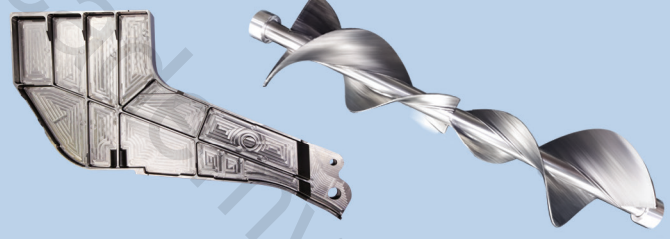
PARTS CREATED WITH SCIAKY'S ELECTRON BEAM ADDITIVE MANUFACTURING (EBAM) TECHNOLOGY:



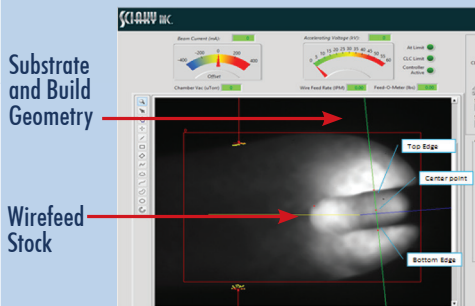
Photograph: Courtesy of Airbus



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 1+877-450-2518, or visit sciaky.com.



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ISO 9001:2008 | AS9100C | Nadcap AS7003/7110

SCI-15-105 REV 6/19/17