

## Boeing 787 Dreamliner Manufacturing Facility

INDUSTRY: **Aerospace**

APPLICATION: **Critical Lift Crane**

PRODUCT: **Custom Underhung Crane System**

SERVICES: **Turnkey Engineering, Fabrication, Installation, Start-up, Site Service & Maintenance**

### THE CHALLENGE

A material handling system was needed for the new Boeing manufacturing facility in North Charleston, SC, where the 787 Dreamliner would be manufactured. The system needed to provide 100% access to the 460,000 square foot manufacturing bay and allow for complex, precise lifting of flight components with varying weights and centers of gravity.

### THE SOLUTION

American Crane provided the design, manufacture and installation of an 80 ton capacity custom underhung crane system with multiple bridges. These bridges can be interlocked to allow the trolley (carrier) to be transferred from one bridge to another throughout Boeing's manufacturing facility. The 460 ft x 1000 ft building is designed without columns, allowing the crane system 100% accessibility to all areas of the facility.

The heart of the crane system is the three (3) "carriers" the operators use to lift airplane components. The carriers can move anywhere in the hangar runway system by transferring from bridge to bridge. The operator can link up to three (3) adjacent bridges together to lift very wide loads (tandem carriers 300' apart).

Each carrier is controlled by an operator's chair which has 10 joysticks and numerous switches and pilot lights. The operator moves the bridge, from which the carrier is suspended, using one of the joysticks. The lower carrier structure rotates 370°. There are two (2) hoist beams which move in and out and are suspended from the lower carrier structure. Each beam has two (2) underhung hoists with each hoist movable along the beam. Including the bridge and the hoist, each of the four (4) crane hooks is movable along six (6) axes. The hoists can be used singularly or in any combination up to a maximum of four (4). Each bridge can hold two (2) 40 ton capacity carriers.

### THE RESULT

This custom crane system with its precision control design, allowed objects of various shapes and difficult centers of gravity to be safely lifted. Each crane handling these airplane parts and components has its own unique structural and functional advantages allowing access to all parts of this large state-of-the-art aircraft facility.

"This teamwork was integral to the success of the overall project and we are proud to have been part of such a successful collaboration." ~ Oddvar Norheim, President and CEO, American Crane & Equipment Corp.

