

case study.

SECTOR: AEROSPACE, MANUFACTURING



Street

Street's uniquely-designed overhead cranes are vital in the production of composite aircraft wings.

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The challenge

A key requirement was to keep the production area unobstructed and completely free of crane supports.

The cranes also had to be flexible enough to operate effectively in the wide span bay which is of light construction and designed to flex in response to wind pressure.

The solution

Street Crane installed some of its most sophisticated overhead cranes including three cranes with a lifting capacity of five tonnes. Two span 20 metres and one spans 25 metres which are both situated between the crane rails.

The system is unique as the crane rails form an integral part of the roof structure, rather than being attached to the building columns or supported on gantries. Furthermore, each of the cranes has cantilevered extensions to give extended reach.

The cranes are suspended from the underside of the tracks and the hoists from the crane bridge. This results in a compact system that can operate within a confined space and has the ability to traverse the load beyond the track line.

All three cranes use Street Crane's ZX64 hoist and have a six metre lift height. The single beam crane bridge is of box girder construction to give the strength and rigidity required for the demanding application.

In the main production area, a multi-span crane has been installed with a 20-tonne lifting capacity and is equipped with two hoists and four suspension points. Known as the jiggle crane, the first hoist takes most of the weight of the wing and the second provides lateral adjustment allowing the wing to be rotated around the beam axis. It has an overall span of 64 metres including an additional cantilever at each end.

In the assembly area, Street installed an eight-tonne turntable crane with twin rotating hoists. The innovative design allows the suspended wings to rotate by 200 degrees at the same time as being transported across the full 52 metre bridge.

The benefits:

Compact, innovative design with flexible movement:

Forming part of the roof structure, the cranes can operate within the confined space and height restriction of the bay, ensuring the production area is unobstructed.

The box beams of the cranes are hinged to provide flexibility and accommodate movements in the roof structure.

Easy maintenance:

The hoist's open frame design provides easy access to major components for servicing.

An external brake operating on the first gearbox shaft, away from the drive motor, remains cooler in use and is also more easily inspected and serviced.

Accurate positioning:

Hoists and travel motion speeds are variable from twenty metres per minute to 400 millimetres per minute with sensorless current vector control for smooth movement and accurate positioning.

Leading levels of safety::

All cranes have a special safe load capacity restrictor and amber flashing lights to warn of their approach with audible warnings..

All cranes are remote radio controlled for operator safety with maximum flexibility, but have the additional safeguard of a push button pendant for back-up.



"There is certainly not another crane of this design in the UK and I doubt if there is another anywhere in the world. ."

