The Manufacturing, Process Flow and the Installation Lay Out definition were made at the concurrent engineering phase. Additional companies were subcontracted by MTORRES to work at certain project phases.

The main technical features are:

• Customized & Integrated automatic Cell for drill and assembly Ribs & Fittings, with automatic work piece exchanging system.

• Flexible Spars, Ribs (leading edge) & Fittings drilling and assembly cell. Four working areas plus a customized double spindle machine are included at this area.

• Six automated jigs for movable final assembly. (Skins, Spars, Web Ribs & Skins Assembly, drilling and final fastening).

• One Flexible Drilling & Riveting Head FDRH is also included in the scope.

• Special MTP Software and HMI for machines and automatic stations control.

• Manufacturing control software.

The main technical project highlights are:

• Automatic pulse moving line.

• Three stations with fully automated NC alignment system using laser tracker for section positioning.

• Two TORRESDRILL, 5 axis NC drilling column machines integrated in the assembly line.

• Three TORRESRIVETER 5 axis NC riveting column machines integrated in the assembly line.

• Two Flexible Drilling Heads are also part of the scope.

• One Flexible Drilling & Riveting Head FDRH is also included in the scope.

• One TORRESSMILL NC Surface Milling Machine for final tail connection.

• Special MTP Software and HMI for machines and automatic stations control.

• Manufacturing control software.

The main technical features are:

• Customized & Integrated automatic Cell for drill and assembly Ribs & Fittings, with automatic work piece exchanging system.

• Flexible Spars, Ribs (leading edge) & Fittings drilling and assembly cell. Four working areas plus a customized double spindle machine are included at this area.

• Six automated jigs for movable final assembly. (Skins, Spars, Web Ribs & Skins Assembly, drilling and final fastening).

• TORRESTOOL and C frame TORRESRIVETER system for trailing edge drilling, countersinking and final riveting. It is a very flexible assembly cell capable of working on all Airbus family of aircraft movables.
Moving lines

A380
Transfer car system for section 13 & 18-19 (10 units)
- Moving line to transport A380 Sections 13 (5 units) and Sections 18-19 (5 units).
- Transfer cars automatic operation.
- Used for Sections hydraulic and electrical equipping operations.

A320 FAMILY
Moving line for A320 family fuselage final assembly (10 units). Moving line including transfer cars for fuselage.
- 14 Working Stations -10 Transfer Cars.
- 2 Transfer Stations.
- Non-Stop moving line at 1m/h operational speed.

Special tooling

A380
Stabilizers ribs and spars assembly and drilling cell.
The cell is part of the complete Moveables (Elevators and Rudders) assembly solution Integrated Cell to drill and assembly Ribs & Fittings.
- 3 Axis Gantry CNC Drilling Machine.
- Automated parts storage.
- Lift platform included a independent 3 axis CNC.
- 12 Manual Transport cars to storage of final pieces.
- 4 Working tables.

A320/A340/ A380
Stabilizers flexible drilling and riveting system. The riveter is designed and built to perform the riveting operation of the elevators trailing edges only. Feed, Torque and Speed controlled, depending on the material being drilled at any given time. Built-in metal chips and carbon fiber dust removal system. Dual spindle system, drilling and countersinking from both, top and bottom of the component trailing edge. Measuring of the different materials thickness. Rivet length classification and insertion depending on the material thickness.

C17
Shuttle car for fuselage panels assembly line. Shuttle car tools for riveting/splicing moving line of large fuselage components.

Moulds

Layup moulds design and fabrication, in invar and other materials.