

APPLICATIONS

WINGS AND STABILIZER, FUSELAGE, OTHER STRUCTURE PARTS

MTORRESFIBERLAYUP, AUTOMATIC FIBER PLACEMENT MACHINE

The ultimate solution for HIGH SPEED and high PRODUCTIVITY composite lamination. The TorresFiberLayup is a machine designed to provide the highest productivity when it comes to fabricate high contour Carbon Fiber Aircraft Components. (HCCFAC)

The TorresFiberLayup has been specifically designed for extremely high speed and high productivity fully automatic process to fabricate high contour carbon fiber aircraft component. Its unique tow cutting and adding systems, plus the high speed design concept allows the TorresFiberLayup to cut, add and lay down consistently and accurately at 60 mpm ensuring the highest productivity fiber placement solution available in the market.

It is a MODULAR concept system that allow the design and delivery of virtually any configuration of machine in terms of number of tows, as well as the tow width. Also the machine can be delivered under different architectures, Gantry type, Column type, with or without a Head Stock - Tail Stock system for revolution parts manufacturing, etc...

A highly sophisticated simulation SOFTWARE package, TORFIBER, allows the programmer to generate, simulate and analyse the part program, within a CATIA environment, before the Mtorres provided postprocessor generates the CNC program.

As an option, the machine may include a set of Automatic Tow SPLICING System, one per tow, set up a the creel house, to boost even further the productivity of the TORRESFIBERLAYUP. It works by splicing on an automatic mode the end of a spool to the beginning of the next spool and therefore, avoiding the need to stop the manufacturing process for several minutes each time a spool is finished.

Applications include manufacturing of flat, mild curvature as well as high contour carbon fibre componentes.

For those components which radius of curvature is small enough to prevent the use of the tape layer technology, the the fiber placement technology fits. While on ATL we used one tape (either 150-300), on FP technology we use a number of narrow tows (16, 20, 24, 32 pares). The TORRESFIBERLAYUP can be made to work with either 1/8", 1/4" or 1/2" tow width.

The TORRESFIBERLAYUP can be built in various sizes, to meet customer requirements and specifications.

The remarkable difference with any other similar system in the market is the productivity that this machines delivers. It is substantially, dramatically higher than the traditional systems can offer.

The creel house is set up as close as possible to the head, and travelling with the machine. The head is modular concept, depending of the numbers of tows, growing... The Head-Stock - Tail Stock is for an 90Tn mandrel. (smaller can be arranged). This is for 787, sección 43, KHI, invar mandrel, weight 90Tn. Lay up speed 60m/mn. Cut and add on the fly at full speed; no resine built up problems, no tow twisting.

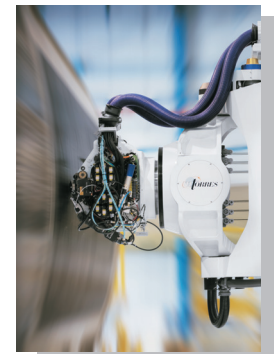


TECHNICAL CHARACTERISTICS

AXIS	WORK TRAVEL	POSITIONING SPEED	ACCURACY
Z	T.B.D.	65.000 mm/min	0.3 mm
Y	2.000 mm	25.000 mm/min	0.2 mm
X	1.500 mm	25.000 mm/min	0.2 mm
CC (Pitch)	± 45°	8 rpm	± 40 arc sec
AA (roll)	± 145°	30 rpm	± 40 arc sec
BB (yaw)	± 45°	8 rpm	± 40 arc sec
U (tow add)	Continuous	84.000 mm/min	0.2 mm

Options:

- Autosplicer
- Spool Run out
- Head stock – Tail Stock
- Automatic tow miss – add / tow miss-cut detector



REFERENCES

- KHI KAWASAKI (Japan)
- GKN (United Kingdom)
- AIRBUS (Spain)
- FIDAMC (Spain)
- SPIRIT (USA)

