..... >Automatic machining center for polymer sheets

Tuesday, 16 November 2010

News Release Automatic machining centre for polymer sheets from APEX Automation and RoboticsIn a project for a leading multinational company, Apex Automation and Robotics was faced with the challenge of designing and building a special purpose machining system for polymer foam sheets.Polymer foam products are used as sandwich core materials in industries where lightweight rigidity is required such as propellers for wind turbines, light aircraft fuselages and yachts. In order to help the resin infusion process and maximise adhesion, the sheets must have holes drilled through and groove cut in their surface.

The automatic machining system that was developed and built by Apex Automation and Robotics uses 7 servo-drives machining grooves in the sheets and drilling holes at a rate of up to 400,000 holes/hr.

Before running a batch, the operator enters the product specifications on the HMI (Human-Machine Interface). Depending on the density and dimensions of the product, the system follows a recipe that sets the parameters for machining
including drilling and grooving speeds.

Each sheet is pushed against a reference and clamped in position. The grooving head moves on a 2-axis servo driven system to machine the grooves. It is then followed by the drilling module mounted on its 2-axis servo driven system. The custom-designed drilling module consists of an array of 394 drill bits driven by numerous gear chains staged down to one servo motor, and can drill square or diamond hole patterns of 20x20, 40x40 or 80x80mm.

These servo-driven machining modules result in accurate high speed operation, achieving tolerances of less than 0.2mm and producing more than100 sheets/hr.

This Automatic Machining Centre is another system supplied by Apex Automation and Robotics using the latest technologies to deliver world-class equipment to this industry. Two of these systems have been recently exported to China.