

M&MT

September 2016

Materials & Manufacturing Technologies



Levelling the battlefield

Construction

- Disney gets a gelcoat

Machining

- Reach for the sky
- Passion soars



Reach for the Sky

Exclusively supported in the UK by Cannon Shelley, Belotti has been manufacturing a comprehensive range of CNC milling and waterjet 3-axis and 5-axis cutting systems for over 30 years. The Italian company provides efficient and cost-effective solutions for the machining of advanced materials such as carbon, Kevlar and lightweight alloys in demanding industry sectors.

Many OEMs in the automotive, aerospace and marine industries, as well as companies in the established global supply chains, looking for machine accuracy and reliability have selected Belotti machining centres for the milling of light alloys, sandwich panels and composites. Outstanding material removal rate performance and a wide range of machining centre designs ensure that the customers' requirements can be met, and often exceeded.

Specifically designed to perform at the challenging levels demanded by customers in the automotive and aerospace industries, the Sky Series is a 5-axis gantry-type machine with a fixed machine bed available in a number of sizes. The X-axis can be specified between 2,600 and 3,600 mm, and the Y-axis extends from 1,700 to 3,000 mm.

The vertical Z-axis is fixed at 1,300 mm and is fitted with the patented Torque head, designed by Belotti for the Sky and MDL machine ranges. Made from cast iron for rigidity the yoke-type head is fitted with independently cooled torque motors, one for the rotary fourth axis and two for the tilting axis offering a swing of +135° to -110°. There are two options for the electro-spindle motor fitted to the head, a high speed 20 kW unit running up to 30,000 rpm or a 24,000 rpm high torque



42 kW motor providing a machining force of 53 Nm at the spindle nose.

Control options come from Siemens, Fanuc and Heidenhain, with the latter providing the 5 micron resolution glass linear scale system mounted on the linear axes. This results in a volumetric accuracy of better than 0.01 mm/min in all linear axes.

Equipped with a motorised upper bellows or a completely enclosed guarding system with a sliding roof the Sky Series

is ideal for the 5-axis machining of tooling, moulds and models in aluminium, composites and light alloys materials. The enhanced enclosure design minimises the chance of dust, swarf and coolant - when used for wet machining - escaping onto the shopfloor. Additionally, all the measuring systems are pressurised to protect them against the ingress of dust or swarf.

www.cannonshelly.com

Sharing capability

Equipped with the same cast iron yoke-type rotary/swivel head as the Sky Series, the MDL Series is an advanced 5-axis machining centre range with mobile gantry designed to ensure rigidity during high speed machining. Axis travels for the MDL Series extend from 4 to 30 m in X, 2.6 to 7.5 m in Y and an impressive 1.5 to 4.5 m in Z.

The Classic version has been specified to meet all the production needs when milling models and prototypes for the automotive and nautical industries, while the Superior version, using double axis

drive motors for the complete elimination of the backlash. Heidenhain linear scales measuring system proves a linear accuracy of better than 0.02 mm/min in a sturdy structure. It can be used for milling aluminium and its alloys, structural carbon fibre frames and composite materials for the aerospace industry.

Optionally, MDL machining centres can be specified with a motorised dust suction hood for efficient extraction and a double bridge gantry, with each being equipped with a 30 kW spindle for high material removal machining cycles.