

specialist functions. For instance, watch decorations were done by hand before Almac designed CNC machine tools to implement exclusive pioneering solutions for machining and decorating components that make up watch movements, and these machines are programmed by Alphacam. Almac also produce a range of specialist machines for manufacturing dials, cases, case attachments and links.

The macros for several of the special functions were originally created by MW Programmation at Almac's instigation, and now form part of MW's industry-wide service across Switzerland. They include machining perlage (aspects of decoration such as circles, spirals and linear patterns); sequential numbering to automatically generate serial numbers of pieces without needing to change the NC program manually; palpate, which defines exact placement of the piece before machining; and diamond settings, allowing parameters of the amount, size, and space between stones to be input.

Roland Gutknecht says perlage is a particularly important aspect – often applied to the inside surfaces of plates and bridges as well as on the dial side of the main plate. The cloudlike decoration is generated by the tool only briefly stippling the metal.

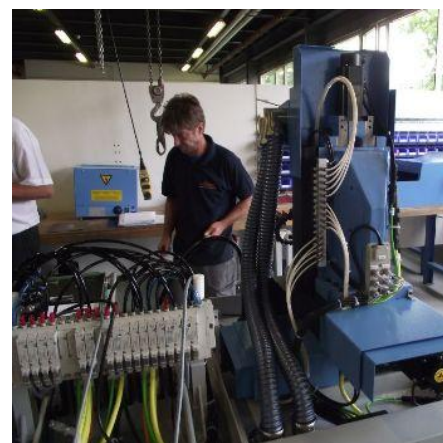
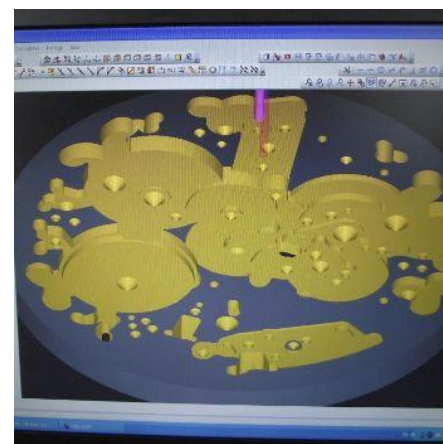
In addition to producing all their NC code with Alphacam for machine acceptance tests, Almac recommend the software as part of their package to start-up companies buying CU 1007 machining centres, and many existing customers already run Alphacam.

MW Programmation work closely with Almac on every aspect of their customers' Alphacam needs, including the macros, post processors, training and technical support. MW have two training rooms at their headquarters in Malleray in northern Switzerland, where they can tailor both basic and advanced courses to individual customers' requirements.

Alphacam is part of the Vero Software stable, and MW Programmation won the Alphacam Outstanding Achievement Award at Vero's 2012 Global Resellers Conference for their specialist vertical market dominance, 350 supported customers, and consistently gaining the highest revenue in the reseller channel.

A recent addition to Alphacam's functionality is a new Waveform 3D Roughing Strategy, which MW Programmation Director Marcel Weber says will be of particular benefit to the watch industry. "The new high speed machining technique maintains a constant tool cutting load by ensuring consistent tool engagement into the material. The tool moves in a smooth path to avoid sharp changes in direction, maintaining its velocity, dramatically decreasing the machining cycle time."

This strategy, which is already proving popular with a number of MW's 1,000 clients across Switzerland, is superior to the traditional Roughing cycle where machinable geometry features are offset – inward or outward – by a stepover. Traditional tool paths have to run slower feeds and speeds because of the variable width-of-cut conditions encountered in corners.



Vero Software Limited

Hadley House, Bayshill Road, Cheltenham, Gloucestershire, GL50 3AW, UK

tel. +44 (0) 1242 542040 fax. +44 (0) 1242 542099

email. info@vero.co.uk web. www.verosoftware.com



Tool load spikes as chip thickness increases in areas where the tool finds more material than it did while cutting in a straight line.

In order to ensure they remain a key machine supplier to the top end of the Swiss watch market, Almac are developing the skills of a number of apprentices, to enable them to set the linear guide rails, which Roland Gutknecht says is a specialised task. "It takes a high degree of expertise to manufacture our CNC machines, and an even higher degree of expertise to adjust the guide rails to the absolute level of precision required to ensure it is absolutely impossible to tilt the spindle."



Vero Software Limited

Hadley House, Bayshill Road, Cheltenham, Gloucestershire, GL50 3AW, UK

tel. +44 (0) 1242 542040 **fax.** +44 (0) 1242 542099

email. info@vero.co.uk **web.** www.verosoftware.com