There's a lot of excellent equipment that comes out of Europe and Japan, especially if you're talking about automated cutting systems. But did you know that you don't have to look that far afield to find precision technology, and you certainly don't have to spend that much. Meet Aeronaut Automation, quite possibly Australia's best-kept manufacturing secret.

THEY'RE AUSTRALIAN, BUT DON'T TELL ANYONE!

How Aeronaut came into being is an interesting tale. The company started out as Aeronaut Sails, a specialised Sydney sailmaking company. Sailmakers were very early adopters of computer aided design and plotters and were essential for drawing patterns onto sailcloth. The problem was that drawing anything else, such as letters and logos was a nightmare and it seemed easier to develop software in-house. Soon, that software was being sold to others in the industry.

The first cutters were developed in late 1995, and sold mainly to sailmakers. However, it quickly became clear that there was a much bigger market in other industrial textiles industries.

"We did not want to make cutters," John Clarke, Aeronaut Automation. "But a customer who had bought a pen plotter said he didn't want to buy an imported cutter, he wanted us to make him one. This was mainly because he thought we could do both the software and hardware better. Having made a tiny demo machine, we sold five others in six weeks and were therefore forced to become real manufacturers. About two years later, while we were still making machines under the house – I'd had been made to move the lathe and mill from the kids bedroom – we sold six cutters worth over $750,000 and had to buy a proper factory."

"Initially, we had competition from some US and European manufacturers but in most markets, this disappeared when local customers realised that they could get a better product, locally made with local service for sometimes a fraction of the price of an imported cutter."

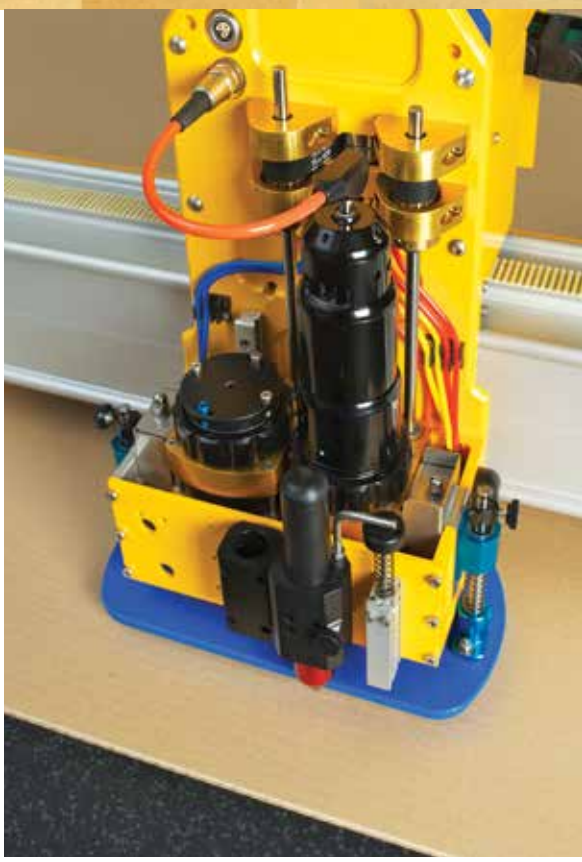
"Aeronaut cutters have an enviable reputation for long life and reliability. Part of the reason for this is that the machines we make have been made from a customer's and a technical perspective, to be the type of machine we would have liked to buy when we were users. This has meant that in comparison to other machines, Aeronaut cutters may appear to be overbuilt and a standard Aeronaut machine would line up against a competitors heavier duty versions."

The company made the move into packaging in 1998, when a US business contacted Aeronaut and asked if they could make a cutter for corrugated board. After some research with designers at companies like Amcor and Visy, a machine was designed for the US customer. This worked so well that their packaging software developer took on the distribution in North America.

"Our first Australian packaging customer rang up our US distributor and asked if the machine was available in Australia," said John. "He was in total disbelief when he heard that they were actually made in Sydney. Before seeing a cutter in action, he sent a series of die-cut design files to see how fast the machine would cut compared with competitors. Fortunately, our software was highly optimised and actually exceeded the target cut speeds by a comfortable margin."

John and the team knew from the outset of designing and building their own equipment that, because of the distance from their overseas customers, they had to use the best quality parts and components to avoid any technical issues that their customers could encounter.

Aeronaut Automation



"If you develop and manufacture in Australia, most of your customers are going to be a long way away and if cutters fail while under the warranty period, you can lose any profit margin," said John. "For that reason, the components we use are the best quality. A good example of this is the German robotic cable we've fitted since 1998 which has yet to fail on any machine in spite of machines cutting and creasing over 4000 kilometres a year."

In the early part of the 2000's, Aeronaut grew at a very fast rate, expanding into one, then two and three factories before moving to a facility in the industrial heartland of Terrey Hills in Sydney's northern beaches. Sample makers were sold to many Australian customers including most Visy offices. The same type of cutters were also sold to a lot of customers doing short-run packaging, where they were run a lot harder and faster.

Aeronaut manufactures almost all parts of the machine in-house using 6 CNC machines including 3 state of the art German 5 axis machining centres. Around 70% of production is sent overseas from Moscow to Peru to customers ranging in size from NASA contractors to tiny companies with a handful of workers.

Because Aeronaut operates in several markets in the industrial and technical textiles field, cutting tables can be as small as 1200mm x 1200mm or as large as 10 metres by 50 metres and longer. These giant machines are used for tasks as varied as making high tech yacht sails to drawing paint-by-numbers markings on carpet backing for manufacturing hand made carpets.

Aeronaut is unique in the cutter market in that machines can carry a range of cutting technologies from ultrasonic and laser to rotary, drag and reciprocating blades.

All cutters made by Aeronaut are bespoke so the cutting table and tooling is specified for each customer's requirements. For cutting short-run boxes, many machines are built with two cutting zones so one may be cutting while the other is being set up for the next run.

"Aeronaut has developed technology in-house specifically for markets such as packaging," said John. "We offer two machine vision systems, SiliconEye and Cyclops."

SiliconEye is a unique full table system that may use multiple high-resolution cameras to cover large tables. Using low-cost, off the shelf digital SLRs, SiliconEye is supplied on 80% of machines and used for alignment, pattern matching as well as nesting patterns into scraps or odd shaped material. What appears to be a first with SiliconEye is the way that images are loaded directly into the nesting window and patterns floated over the top.

Cyclops is a more conventional gantry-mounted camera system that shows a detailed view of only part of the table. Cyclops can be used or alignment, fault finding and pattern matching. Both systems work with a simple software joystick that means all functions can be performed without the operator leaving the computer.

Because Aeronaut offers laser and ultrasonic cutters as well as blade cutters, they're in a position to offer the best solution to most cutting problems without being biased because, as John says, "We only manufacture one type of machine."

While most packaging would use an oscillating blade cutter, Aeronaut's low-cost gantry mounted lasers offer a high-speed cut-and-seal solution for fabric patterns and signs. That being said, the vast majority of laser cutters are exported for work on military parachutes and recreational paragliders in the USA and Europe.

Aeronaut has an enviable reputation for specialised developments and R&D that has resulted in some strange projects such as a machine to manufacture radiation blankets for just-in-time military satellites. Aeronaut is currently employed by a major US manufacturer to design and develop cutters for the US and Europe which are also being manufactured in Terrey Hills.

Aeronaut Automation are possibly Australia's best-kept manufacturing secret. The quality and productivity of the machines prove that you don't have to look overseas to find great equipment, they are right here in our own backyard.