



AEROMAIL

News, New Developments and How-To-Do-Its from Aeronaut Automation



Goodbye Maxis. Hello Elektron!

This month sees the end of the production of Aeronaut's Maxis line of plotters. We've been making this machine since 1995 and hundreds are working all around the world. Since some machines move more than 11 kilometres a week, together they must have tracked millions of kms cutting and marking in that time. Not a bad record.

But why change to the Elektron when some other plotter manufacturers have been making essentially the same machine with different plastic covers for the last 20 years?

I guess the answer is that we thought we could do better. Aeronaut customers don't just expect more, they actually get it, and we believe the Elektron really delivers!

For a start, the Elektron is a lot lighter than the Maxis. The aluminium extrusion used for the gantry or cross beam is both much lighter and much stiffer. This means for the same power, we can drive the Elektron faster and it will also cut more accurately. It means we can produce plotters which are even wider span using the same technology.

The whole Elektron design is simpler and sturdier than our previous machine. The linear guides to mount the Y axis carriage are part of the new extrusion, so the Y axis does not need adjustment over very long periods.

The result is that the new Elektron chassis has proved to be incredibly reliable in the field.

Design Philosophy.

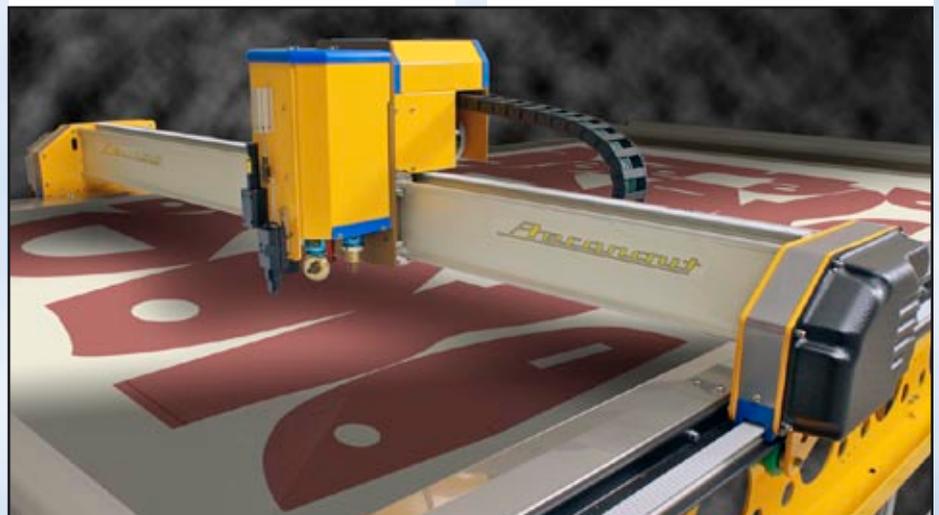
Every manufacturer, whether they are making aeroplanes or camper vans has a design philosophy. At Aeronaut, our ideal is to try to manufacture something which is close to being a universal fabric cutting machine.

If a customer rings up and says "Can I cut 6mm Ultra-Toughtex on my machine... and punch 18mm holes... in the one operation?" our response is to say "Why not?" and sit down and work out how to make this work.

that does all its jobs well. So that if their work changes, their investment is still worth-while.

The Aeronaut approach has always been to try and make the best plotter cutter with as few limitations as possible. A universal fabric cutting machine. An Aeronaut plotter cutter does more, and does it better, than competitive machines. Our customers expect that.

Our first completely new Elektron cutter, the Elektron Quattro, demonstrates this design ideal.



Part of the reason for this approach is where we come from, and part is the type of work our customers do. Aeronaut started life as a sail loft where we used plotters and nesting software on a daily basis. This gave us the background of just how bad some plotters and software were!

Most of our customers are fabricators employing 1 to 200 people in a plant. In most cases they want to own a cutter which is truly multi-tasking. A cutter which does more than just one type of job, and one

Elektron Plotter Types

The first full Elektron plotter-cutter was the Elektron Quattro, released at ACASPA 2006. We're very proud of this machine since it is not only very powerful and versatile, but it represents incredible value for money in a multi-tool cutter.

Perhaps the key highlight of the machine is our quick change Cam-lock tools. In fact we thought this idea was good enough to patent.





Since changing Cam-lock tools takes only a few seconds, the cutter can be set up for a different job in a very short time, just like any metal working CNC machine.

The next great feature is that the steered shafts that mount the tools are not only very sturdy, they are also hollow. This means that we can use the hollow shafts to extend the capabilities of the cutter in all sorts of ways.

Right now, one obvious benefit is that you can use any steered shaft to mount a proper drill punch with a solid rod ejector. Normally punches are a specialised option. In fact, many competitors have impact punches which can only cut thin and non-resilient materials.

On the Elektron Quattro, if you need two or three punches for a job, you just fit them in place of any un-used cutting tool.

Another great idea is that the air cylinders used to apply the cutting or drilling pressure can be different sizes, so you can get the amount of cut pressure you need, whatever the type of material you need to cut. And of course this pressure can be adjusted automatically in software with a digital pressure gauge.

As with other models in the Elektron range, the entire cutting mechanism can be removed in a few seconds for easy servicing.



Cam-lock Tools

Aeronaut plotter-cutters all carry quick change tools. Either Cam-lock style, or bayonet mount style.



The Cam-lock tools are firmly fitted and indexed on the cutting head with a single 90° turn of a special wrench.

Since Cam-lock tools are made in a single setup on our CNC machine, each tool will have exactly the same blade angle as all the others. All Cam-lock tools are designed to have the same contact height on the table, so all tools are automatically indexed for height and blade angle and can be used on any tool shaft.

Cam-lock tools are relatively light and lend themselves to high speed work, but they are also very strong. The steered shafts on the Elektron are 12mm diameter... oversize in fact, so the entire tool system is very rugged.



Because most Cam-lock tools are made in one machining operation, these tools are well priced. Setting up a machine with a full range of tools is an easy option.

Bayonet Mount Tools

Bayonet tools have been fitted to the Maxis 1 and Maxis II cutters for around 10 years, so the design is well proven.

Bayonet tools mount from the top of the machine... a very quick way of fitting a tool. This makes blade changing very safe and simple, a feature much valued by operators who have used other types of plotter.



Originally intended for ultrasonic applications, the bayonet tool holders are ideal for a lot of heavy duty applications and where powered tools such as reciprocating blade cutters are called for.



Aeronaut's popular Elektron B2 sample-maker is used in design offices and short run packaging companies to make packaging and display items. In this application, the machine carries a powered reciprocating blade cutter, marker pen and creasing tool.

Bayonet tools and Cam-lock tools each have their own advantages and are both being supplied on our cutters. Where customers have existing bayonet tool mount machines, they may prefer to stay with a bayonet tool type plotter such as the Elektron B1 or Elektron B2.

Elektron Mono.

The Elektron Mono replaces the Maxis Pz and Maxis LC as our entry level plotter. This was the very first plotter-cutter manufactured by Aeronaut, and many people's introduction to automated cutting.



The Elektron Mono sets a new benchmark at this level in the market. The Elektron Mono is a single tool machine with a marker pen holder. But since it is equipped with a steered tool shaft from the Elektron Quattro, the Elektron Mono can take any Cam-lock tool, and due to its hollow shaft, drill punches with solid rod ejectors too.

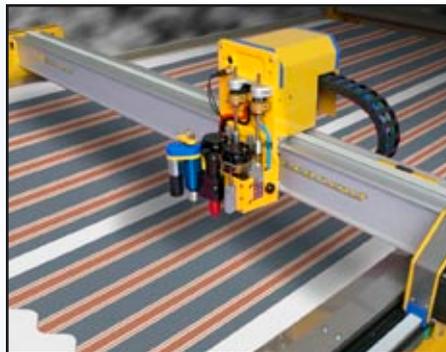
Since the Elektron chassis can be supplied up to 6.5 metres wide Elektron Mono is a very rigid and heavy duty machine (especially compared with other entry level plotters.) The Elektron Mono comes in an affordable narrow width version (Mono LC) and a more powerful machine (Mono WS) available in widths up to 6.5 metres.



Elektron B2.

The Elektron B2 is a bayonet tool holder machine, with two steered tool holders and a drill punch. Optionally, it can be fitted with a laser pointer holder and drill punch.

The Elektron B2 combines the industrial strength and reliability of the Elektron chassis with the time-proven bayonet tooling. The bayonet tools are identical with the earlier Maxis type tools to give full backwards compatibility.



The Elektron B2 sample maker is made specifically for the packaging industry and is fitted with a reciprocating blade cutter, creasing tool and pen holder. The vacuum table has a porous rubber table top.



As you might expect, with B2, you have to have B1. The Elektron B1 is a single tool holder version of this machine similar to the previous Maxis 1.

As with other models in the Elektron range, the entire cutting mechanism of the Elektron B2 can be removed with 6 screws for easy servicing.

Elektron Laser Z.

The Elektron Laser Z is a light-weight laser available in air and water cooled versions. It was initially developed as a low cost tool for cutting and heat sealing synthetic materials like spinnaker fabric and parachute nylon. Due to the demand, several more powerful sizes have since been developed.



Even a 30 watt laser can cut most rip-stop nylon at 800 - 1200 mms/sec, so there is little point in using anything more powerful because you can't drive the chassis much faster.

The advantages of a laser for many materials are obvious... Off contact cutting. Zero nesting gap. Heat sealed edges on tightly woven fabric. Very low maintenance. Very simple to operate.

The Elektron Laser Z has sold well to people like paraglider manufacturers (one in Moscow). Apparently in Khazachstan this is how, for around 50 cents, you get your paraglider up to the launch!



Ultrasonic Cutting

Our UK agents, ACRS, made an important breakthrough with automated ultrasonic cutting last year. Since then, Aeronaut has developed the Elektron Ultra ultrasonic cutter.

Ultrasonic cutting is an attractive proposition for cutting and sealing synthetic fabric which is too thick or coarse weave to cut with a laser, or where edge discoloration might be a problem.

Most ultrasonic cutters being used in the window furnishing industry are essentially manual devices... a smart Stanley knife. Manually operated cutters don't improve the productivity of the operation, save fabric or reduce mistakes. Fully automated systems like the Elektron Ultra can square-cut all sides of a pattern without moving the fabric on the table... in fact you can cut many more patterns than just the one in the same operation. That's automation!

If you are interested in a demonstration of the Elektron Ultra, or would like to see cut samples of fabric, please give Aeronaut a call.

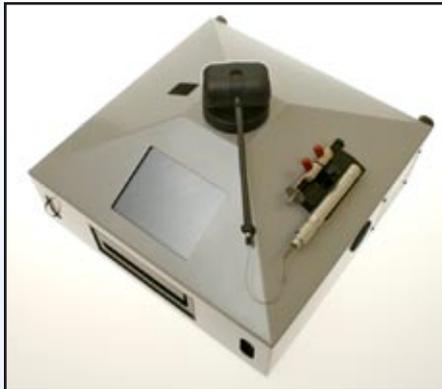
Prodim Proliner

At the 2006 METS marine trade show in Amsterdam we were talking to various customers about how to measure and pattern difficult 3D shapes such as boat covers, biminis and decks. Many of these people were thinking about using Prodim. What was Prodim we asked!

A quick look at the Prodim device called the Proliner, showed it was the answer to a lot of 3D patterning problems which were not solved by the camera... or any other method.

Aeronaut already has digital camera based systems for measuring flat panels to a high degree of accuracy, but the shiny plastic patterns produced by marine and other trades pose problems for the camera.

Laser and automated theodolites can measure with terrific accuracy, but normally generate so many points that getting a pattern from the data is a major task.



Essentially, the Prodim Proliner is a clever stick on a string. The distance the string is pulled out of the Proliner is measured, as well as the angle of the string in the horizontal and vertical planes. These are used to calculate points in 3D space.

Because the Proliner measures and generates a pattern in one go, is unaffected by wind, and is a one man operation, the Proliner could be the best answer yet for patterning complex outdoor shapes... things like swimming pool liners, boat covers, biminis, trailer covers and aircraft covers.



To use the Proliner, the operator takes a pen-like pointer in one hand and a remote control with four buttons in the other. A button on the remote control is pressed to tell the Proliner the shape is starting. Then the tip of the pen is positioned on the object being measured and a button pressed on the remote.

Where there's a curved section on a pattern, a different button on the remote is pressed, and the Proliner

captures a series of points as the pointer moves, until the button is pressed again.

With the Proliner, you capture just the points you need to describe the shape. This means there's very little editing required to get a finished pattern, ready for cutting.

Aeronaut has developed the essential software tools to go with the Proliner. A translator interface to allow Proliner 3D files to be imported to a computer and opened by programs such as Vectorworks or TouchCAD. And a plug-in tool for Vectorworks to allow the 3D panels to be almost instantly flattened.

Mac and Windows.

You may have heard that all current Mac computers have Intel chips instead of the older Motorola chips. The big benefit of this to Mac users is that you can run Windows programs on a Mac without needing to own an actual PC. So you get the best of both worlds.

There are two ways of running Windows on a Mac. For maximum compatibility with peripherals, you need to look at Apple's own Boot Camp. With this program, you reboot the Mac as a Windows computer. Takes a minute or so, but the result is a very fast PC which behaves exactly like a very well behaved PC.

The alternative is Parallels. This is a more convenient way of running Windows and has some significant advantages. Parallels just looks like another program on the Mac. Run it, and you get another window with the PC running inside. You can let this take over the whole screen or you can run just the window of the application you need to run.

File sharing with the Mac side is easy, and almost all peripherals work. Great! Now you can have a really well engineered computer running all the software you need.