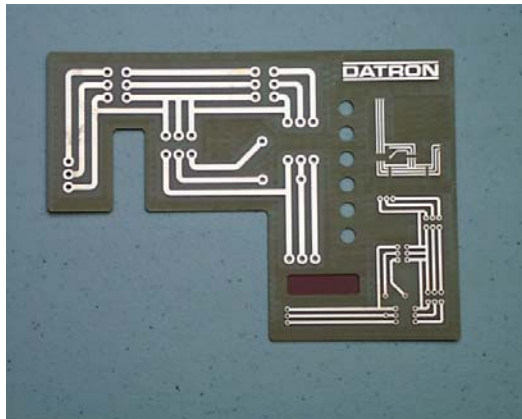




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Application Notes

Part: Printed circuit board trace milling and board machining
Material: 0.100" printed circuit board
Machine Used: M5 - 4750
Features Utilized: "Z" probe and automatic tool change unit
Software Used: PrimCam
Total Cycle Time: 39 minutes



Machining Details:

(3) drills used - 2mm, 1mm & .5mm
3mm emill at 38k rpm at 3 meters p/m
2mm emill at 40k rpm at 2 meters p/m
1.5mm emill at 42k rpm at 1.3 meters p/m
1mm emill at 44k rpm at 1 meter p/m
.5mm engrav. at 30k rpm at 1 meter p/m
.2mm engrav. at 35k rpm at 1.5 meter p/m
3mm fish tail at 38k rpm at 1.5 meter p/m

Summary of the Application:

We were able to offer a versatile solution where the machine not only can machine hard metal but meet your needs of intricate printed circuit board milling. Our high frequency spindle was utilized because this application required intricate tooling at high rotation speeds. Also in order to effectively machine fiber board, a high rpm spindle is required. Our unique "Z" height compensation probe was a great advantage as it allowed for exact milling depths. This is useful in these applications because the fiber board thickness often varies throughout a work piece. Please note our machine has been used in after market trace cutting applications for this very reason.