



SPS – High flexibility and productivity in the processing of sheet aluminium parts for the Aerospace Industry, with CMS FXB.



In 2005 SPS won a large aerospace order for the supply of sheet aluminium parts to the Aerospace Industry. To achieve the volumes required they needed to invest in new equipment, as a result Gary Hemmings, Manufacturing Engineering manager was given the task of finding the necessary equipment to achieve the huge increase in volume required. Gary spent many months investigating the various options for producing the blanks, including Laser cutting, Water jet cutting as well as the traditional routing. It was soon established that routing was the only solution that achieved the necessary edge finish without damage to the material structure. Following further investigations with various manufacturers a short list of three potential suppliers of CNC machining centres with the necessary capability were selected and the process of establishing the best value /performance was started. Each supplier was asked to provide sample parts for evaluation and this was compared against the cycle time, quality of finish and accuracy.

The sample parts supplied by CMS were of exceptional quality and had been produced on a similar machine from a customer in France. These parts would be used as glass case samples of the standard required by SPS. The CMS solution was to use a pressure foot system which would hold a stack of parts up to 12 mm thick onto a spoil board of MDF. This patented system allows to get, without compromises, an excellent edge finishing quality of parts at a very high cutting speed, without leaving marks on the surface and avoiding the extremely time consuming operation of screws insertion to hold the stack.

Another major benefit of the CMS proposal was the twin table solution. This solution is based on the machine being supplied with two cutting heads each with its own toolchanger and independent control so that the machine could be used in the following way.

First table one would be loaded with the stacked aluminium sheet and the program started. Table one and head one would start producing the necessary nest pattern required. Then table 2 would be loaded and a different nest pattern selected this would also be started. The result is that the machine can be working on two different nested patterns at the same time and each table could be unloaded and loaded while the other table carried on working. This facility gives an incredible benefit; high volumes of parts can be produced with the flexibility of having two separate nests running at the same time.

Based on the capability offered and the edge quality of the samples supplied plus the competitive position of the machine, SPS decided to put their faith in CMS and drew up a demanding contract of supply for two machines. The contract demanded that the machines would only be accepted subject to a strenuous acceptance test at the CMS factory in Bergamo in northern Italy. The nesting software was to be supplied by Alphacam and to ensure the necessary result, technicians from Alphacam and CMS UK Ltd went to Italy to work with the CMS applications engineers to write and test the necessary routines before the arrival of the SPS team.

The acceptance test required that a stack of 12 mm thick 2x1 m sheets of aluminium be loaded onto each table and a separate nest produced including the entire de-tagging, with a surface finish equal to the original samples supplied. The results were even more impressive than originally anticipated. The machines were able to produce 1100 parts in an 80 min cycle time with a superb edge finish and a high quality blend on the de tagging. The machines have now been in production for more than 8 months and SPS are delighted with the quality, output and flexibility of the CMS machines.