

EDM specialist is now an all-rounder thanks to investment and tooling strategies

Back in 2002 A&M EDM, started with the ambition to be 'the best' sub-contract EDM company in the UK and it achieved its aim. In doing so it also saw further opportunity in the metacutting sector and through customer demand, its machining facility grew culminating in a two-year, £4 million, investment and a move to a 26,000 ft² factory.

This growth in machining capacity compliments the EDM side of the business with both described as core activities by Gary Surman, A&M EDM's Machine Shop Manager, with the machining feeding the erosion side and visa-versa. The need to relocate the machining side of the business gave the company clean piece of paper to work with and over a six month period it developed the facility and moved machines in, including two new Hurco DCX32 3.2x2.1metre bed length machining centres. It is now home to 18 Hurco machines, along with a developing grinding section, temperature-controlled inspection facilities, laser welding, and significant design capability, including laser scanning for reverse engineering projects.

While growth is not unusual A&M EDM differs from many companies in several ways, one of these is its outlook on investment with its priorities, in this order, being manpower, tooling, machine tool. "When the first four machines came in they were accompanied by £10,000 of tooling from WNT, and a commitment from the Sheffield-based tooling specialist to work with us to supply tooling to suit our strategies and optimise tool usage," says Gary Surman. An example of this was A&M EDM's desire to operate unmanned overnight, in the strictest definition of the system, with the lights switched off at the end of the day shift and machines left running.



"With our background in EDM we were happy to run lights out, but when most machinists talk about lights out, they generally only leave finishing cuts running overnight. We were determined to carry

out full roughing operations, on components with cycle times up to 35 hours at 7000 mm/min and in difficult to machine materials such as 30 HRC Toolox 33 tool steels. This meant that process security had to be a high priority on tools that in many cases had extended overhangs, so we embarked on some serious strategy reviews, with every aspect of the metalcutting process investigated. The result was optimum speeds and feeds, and multiple sister tools in the carousel,” says Gary Surman.

The key tools used in the unmanned operations are WNT’s 63 mm diameter High Feed indexable insert cutters, which offer a combination of high feed rates due to the close pitched inserts, whose design present a positive rake angle to the component and the cutting action results in maximum tool life, reduced stress on the spindle, lower power consumption and reduced vibration, which all help to guarantee the necessary process security. Confirming this, over the 18 months that A&M EDM has used them they have only cracked one insert under machining conditions. Part of that success is down to the tool management in use, with roughing operations undertaken unmanned, the inserts are then indexed and used during the day for other operations. Ensuring that no breakages occur is the system of sister tools, in A&M EDM’s case this could mean up to 28 identical tools in the carousel ready for use when the specified tool life is reached. In addition, tool maintenance is high on the agenda, with inserts changed after a set number of minutes of cut, and if a Torx screw needs replacing, the full set of screws in that body will be changed.

“This may seem like overkill, but with the number of sister tools we have, it could take two hours to take all of them out of the carousel, change the inserts and replace them. By doing this as a background operation we save valuable time and also ensure tools are in peak condition all of the time. We also have standard tool tables that specify cutting data for each and every tool in use, and where those tools sit in the machine, so everyone working here knows exactly how those tools will perform on various materials,” says Gary Surman.

A&M EDM worked closely with WNT going through every tool from milling cutters, drills, reamers and taps. For example, every 63 mm diameter High Feed cutter is in the same length toolholder, shrink fit was specified for many cutters to avoid vibration, improve surface finish and generate guaranteed tool life, which is often 4 or 5 times longer than if other toolholding methods, such as Weldon, were used. All standard tools are stored on the shopfloor close to the machines as this aids the maintenance procedures, but A&M EDM also has a stock of tooling held in a WNT Tool Service vending system. “At the end of the day we are a sub-contractor and we can never know for certainty what work will come through the door next, so we have invested in a range of common cutters that we hold in the vendor. We could choose any number of tooling suppliers , but we know with WNT that we can place an order up to 6:30 pm and get it the next day, this is our get out clause as we often get very urgent work at short notice, and this level of service level is a major benefit. In addition to delivery we know that specific tooling requirements will be dealt with and we rely on Stuart Green, our WNT Technical Sales Engineer, to supply the right tools for the job based on what we tell him we need, and it works.

A&M EDM is an ongoing success story driven by its desire to invest in the best technology and valuing the importance that tooling has on the manufacturing process. In addition it has a

willingness to look at problems and provide solutions and further development of its manufacturing and design and development capabilities already underway it bodes well for its customers across the automotive, oil & gas, press tool, and aerospace sectors. "The skills and technology that we can call on means that we are capable of simply putting a hole in a bucket or helping to put a satellite in space," concludes Gary Surman.

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