So you think you know about EDM?
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David Light is a man with a mission — to educate the precision engineering community about the virtues of electrical discharge machining (EDM) as a process. Towards the end of 1997, he conducted a survey among Di-Spark's present and former customers which unearthed a surprising lack of knowledge of the process (see Machinery, 7/21 August, page 3). For instance, 41 per cent of respondents did not know what EDM stands for, 10 per cent did not know that the tool is not in contact with the workpiece, 95 per cent were wrong about the number of pulses per second of which EDM is capable and 65 per cent were wrong about the tolerances achievable using this process.

Considering that he earns his living from EDM, Mr Light is remarkably unsurprised by these results, feeling that the survey only confirms the opinions he already held on the subject. "The problem," he says, "is that practising engineers are generally familiar with physics and matters involving mechanical forces. And as soon as you show them a process which deals with chemistry and electrical sciences, their instinct is to regard it as a "black art" and shove it into a corner."

Founded in 1980 by Mr Light's father, Di-Spark began life with two wire erosion machines in a small unit, primarily serving the machining requirements of local toolmakers. Today, the company occupies 10 000 ft² of industrial floorspace, employs 27 people and classes itself as an "EDM specialist" serving...
among others, the motorsport and aerospace industries. The company covers the range of EDM applications, including wire erosion, spark erosion and EDM hole drilling, and also has sufficient conventional machining equipment to justify calling itself a ‘one-stop shop’.

But despite this success, Mr Light feels that there is still a long way to go before the industry really understands what EDM in general, and his company in particular, can do. So why is this technology, which, after all, has been in existence for over 30 years, still being held back? Mr Light blames the misconceptions still held about the process: “EDM is still thought of as slow and expensive, and these misconceptions still exist because the industry has failed to address them. Having said that, I don’t even know if there is such a thing as the EDM industry — there’s certainly no industry association.”

Another problem that continues to cloud the issue, according to Mr Light, is that of terminology. Some people use the term ‘spark erosion’ when they mean ‘wire erosion’, some people say ‘die-sinking’ when others say ‘spark erosion’. Mr Light gives an even better example: “I get people calling me and asking ‘can you ‘Di-spark’ this’? OK, I take it as a compliment, but it shows the problem that exists.”

EDM suppliers are only too happy to acknowledge the use of their machines in cutting edge manufacturing industries such as motorsport. Mr Light feels that this industry should be applauded for designing a multitude of new components around EDM, so surely this must be an endorsement of the technology’s acceptance? Apparently not. In fact, Mr Light feels that this association has actually hindered its wider acceptance: “Because people see motorsport as a ‘money-no-object’ industry, EDM’s use in this environment only confirms their misconceptions about how expensive it is. There is also the belief that the process is slow and the word ‘erosion’ doesn’t help here, as it suggests a very slow process. Now I could never dispute that, in terms of shear metal removal rates, you can’t beat plenty of horsepower, but EDM can do things that can’t be done any other way and also allows problems to be completely re-engineered. These are the benefits that need to be sold, EDM should not be seen as a process of last resort, but a main-
As well as the Ingersoll HS 500 above, Di-Spark has four other spark erosion machines and nine wire erosion machines.

stream machining technique in its own right.

And these are the benefits that have been sold by Di-Spark to various customers. So much so that Mr Light has discovered a drawback in his mission to inform and educate his clientele. "The biggest problem," he says, "is that I educate them and they go and buy an EDM machine themselves and we lose the custom — but that's life. There are two schools of thought, really — keep your cards close to your chest and preserve it as a black art, or open the thing out. The way I see it is that the more applications that exist and are centred around EDM, the more work there will be for us to do."

Mr Light finds that his biggest frustration is knowing what EDM can do, but hearing all the same old prejudices trotted out over and over again. "For instance," he says, "the first thing a lot of people think of when they hear the words 'spark erosion' is a process designed to take broken taps out of workpieces. This company has a spark erosion centre with a 22-station toolchanger, more movements than a vertical machining centre and an integrated c axis. That is not a tool for taking out broken taps; it's a highly sophisticated machine tool for production work."

On the subject of equipment, Di-Spark's capacity list is impressive. As well as Ingersoll HS 500 referred to above, the company has four other spark erosion machines, nine wire erosion machines, including Charmilles Robofil 310s, two Robofil 510s, the company's most recent purchase, a Rot 330F. In addition, it has recently purchased Cincinnati Sabre 500 vertical machining centre to add to its already extensive list of 'conventional' machining equipment.

David Light sees this sort of investment up-to-the-minute equipment as fundamental to the ability of a company like his to survive in the coming years. He says: "I think that is a little bit of capital equipment. You also have to have an infrastructure in place which makes the best use of that equipment." To this end, the company has recently installed the Jobsi computerised production control system, has installed a computer network which links every PC in the company, including shopfloor terminals. And this technologically advanced, 'IT-literate' environment is something else of which Light is very proud, particularly in the light of the many people's perceptions of engineering as a dirty and often antiquated profession. Mr Light is trying to address. "Six of my staff apprentices or ex-apprentices," he says, "are in training and cultivating and encouraging staff is absolutely vital to our future."

Comparing running a business to playing football match (football being another of his passions), Mr Light says: "In football, if you lose all the basics right — passing, movement, tracking back, picking people up at set piece, etc — you are likely to win more games if you lose. Business is the same. If you make sure you do the basics right and have got right structures in place, you are more likely to do well than badly."

In essence, the same problems affect Spark as affect every other small-to-medium size engineering firm — skills shortages, payment and general business insecurity. W is different about Di-Spark, however, is in the genuine culture which the company try and remedy such difficulties rather than just complain about them. The attitude of "nobody else was doing anything about it, so I thought we would" is one that recurred through Machinery's visit to Di-Spark. So far, it seems to have served the company well.

For more details:
Di-Spark enter 730