



△ Fig #1



From simple to complex — we deliver results



High Accuracy and Prompt Delivery: Their logo says it all!

For our Spring Top Shop feature, EDM today traveled to Fridley, Minnesota to visit AccuPrompt. AccuPrompt is primarily a contract EDM shop, serving the medical, plastic molding, and electronics industries. They pride themselves with taking on a variety of work that many other shops turn down due to size, complexity, tolerance, or delivery. Before delving into AccuPrompt's facilities and capabilities, let's first recount their interesting history.

Scott Hoffmann, President and Owner, founded AccuPrompt in 1991. As is common with many of our Top Shop entrepreneurs, Scott had a longstanding career in EDM prior to founding his company.

While in high school, Scott took night courses at Dunwoody Technical College in Applied Machine Shop Math. In 1980, he enrolled in a course in jig and fixture design and machining. While there, the school received a donated Andrew EF 330 Wire EDM, and Scott spent a week at Charmilles/Andrew training on the EF Series

wire EDM's. This was a pivotal point in his educational path as it led to his involvement with EDM for the rest of his career.

Scott's first job was at Northwestern Tool & Die Works, working the night shift. The next step in his career was an opportunity in the Dycotec EDM Division of Federal Stampings. At that time Federal Stampings was the nation's leader in short run stampings. After witnessing the potential of Wire EDM to enhance the die making process for their short run stamping operations, Federal set up a separate division to incorporate this technology.

In its heyday, the Dycotec EDM Division was producing in excess of 50 dies per week, and Scott was an integral part of the team that set up the operation. Taking the experience he had gained from working in the short run stamping industry, Scott recognized the value in marrying EDM technology into permanent tooling within Flex-circuit and Lead Frame dies at Qualitek Engineering, a leader in close tolerance die work.

Scott joined Dynamic Engineering, a well-regarded mold shop, in 1987. In the early days of Wire EDM, many mold shops were slow to embrace employing Wire EDM technology to plastic mold making. Dynamic became one of the early adopters of Wire EDM technology, and Scott assisted them in this transition.

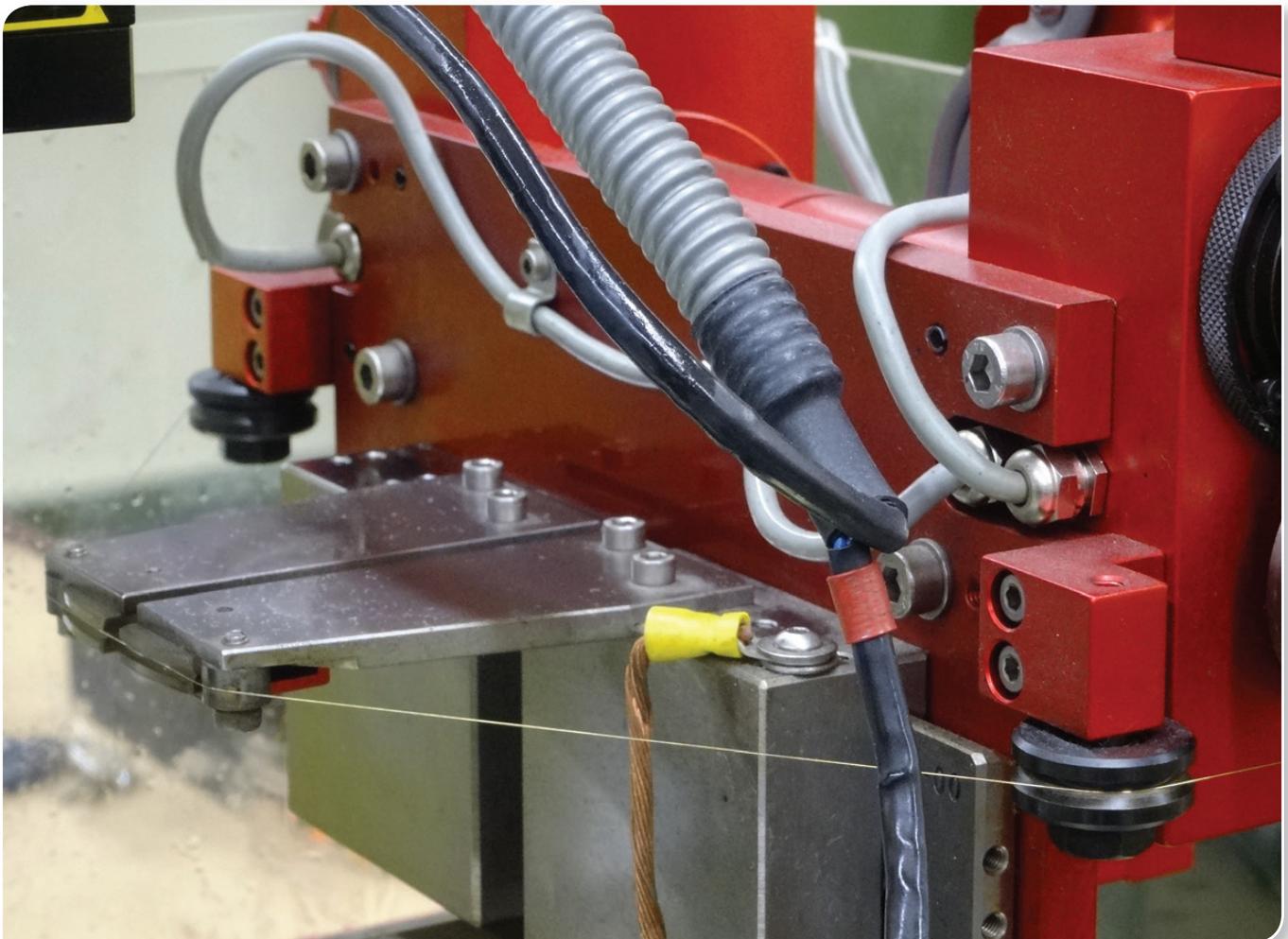
In 1991, utilizing his substantial job shop EDM experience, Scott founded AccuPrompt in a 2,400 square foot bay located in an industrial complex. In the beginning, AccuPrompt consisted of a single wire machine, a hole popper, and a PC running Esprit software, all manned by two employees. Six months later, Scott acquired his second wire machine, and nine months after that his third. In 1996, AccuPrompt expanded by taking an adjacent bay in the complex. In 2013, AccuPrompt further expanded into a third bay to set up a precision machining and grinding operation to complement their EDM operations, satisfying customers looking to them to provide these kinds of additional services.

The history of AccuPrompt would not be complete without mentioning Dan Noonan, Scott's long-time friend and compatriot. Dan and Scott first met at Dycutec. Dan's history with EDM goes back to 1967 when he worked for Fay Machine selling Charmilles EDM's. Since that time, Dan has founded numerous EDM shops. He spent some time as product manager for Agie in the early history of

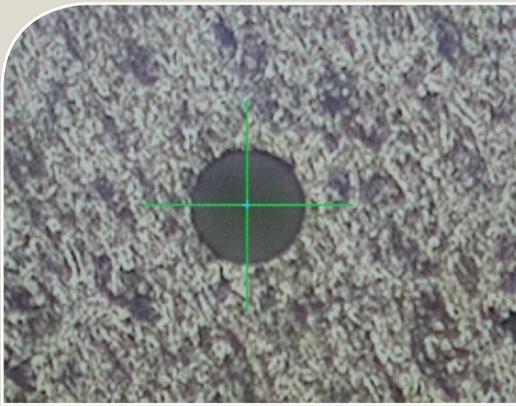
Wire EDM in the US, and returned back to Fay Machinery and sold 56 machines over a three year period after Charmilles had acquired Andrew Engineering. He later founded and operated DJ Noonan Company as a Charmilles distributor for many years, and now works as an independent consultant. Dan works closely with Scott, often consulting on machine rebuilding, systems integration, and other engineering and application projects.

Today, AccuPrompt has 16 EDM's of various brands and 14 employees working on two staggered shifts operating a total of 20 hours per day. They are ISO 9001:2008 and ISO 13485 registered. While handling a wide array of job shop EDM applications, their forte is very tight tolerance work, often with micro geometry features, which require working with small diameter wires and exotic material electrodes.

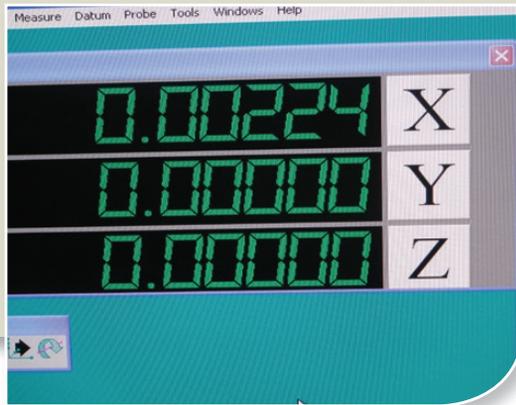
To that end, over a period of years, Scott has acquired four Swiss Sarix micro EDM's (see Fig #1) which are purpose-built to accommodate very small, highly accurate EDM applications. These Sarix machines can work with microelectrodes produced by a Wire EDM Dressing attachment, (See Fig #2) which is used to discharge dress electrodes on the machine that would ordinarily be too fragile to be produced with external conventional means.



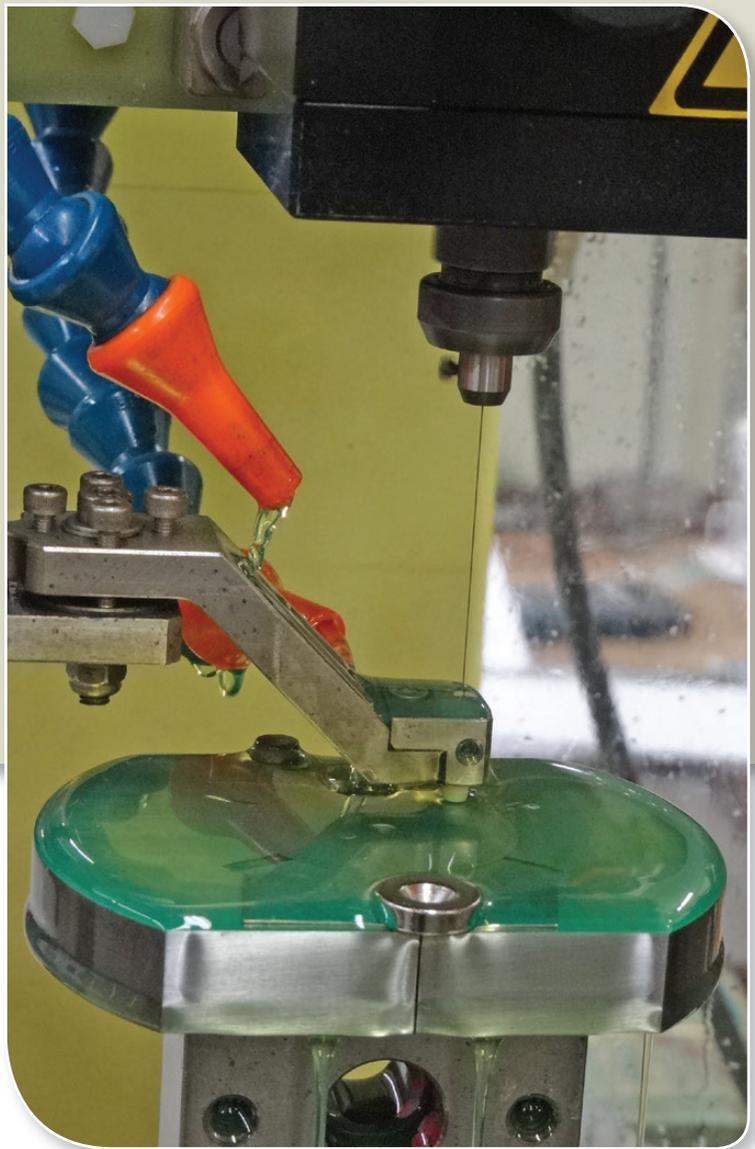
△ Fig #2



△ Fig #3



△ Fig #4



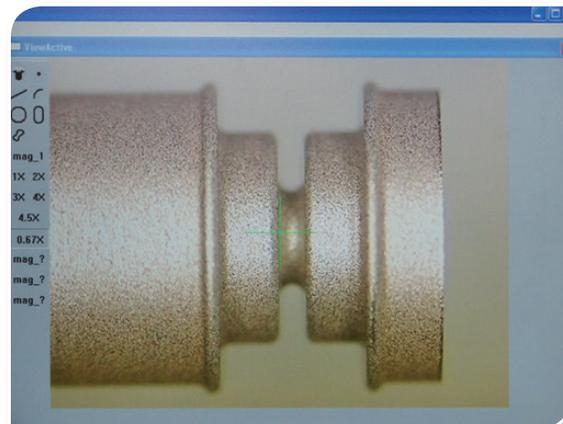
△ Fig #5

A typical application is stainless steel discs with a series of micro holes, a number of which are .002" diameter. (See Fig # 3, 4,). Fig #5 shows the part being EDM'd. The electrode material is tungsten carbide, and it is discharge dressed by a .006 Diameter brass wire with a series of rough and finish skim passes. The entire job is completed autonomously, with automatic redressing after each hole is completed. To date, AccuPrompt has successfully burned holes as small as .001 diameter utilizing a .0007 diameter electrode.



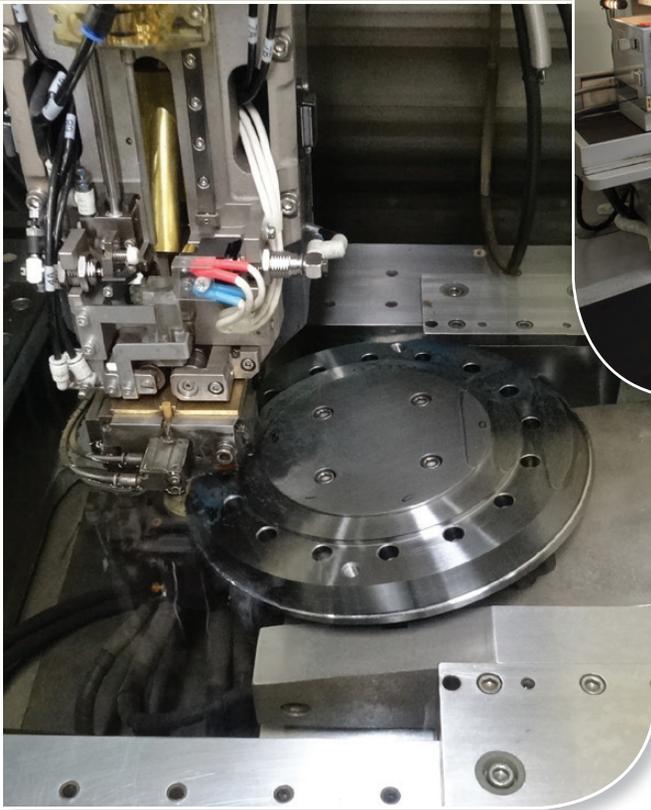
△ Fig #6

In another application, AccuPrompt is producing a high tolerance cylindrical part utilizing a Hirschmann high speed spinner in conjunction with a Mitsubishi QA Wire EDM in a Turn & Burn application. (See Fig #6 &7) They are holding a +/- .0001 tolerance on this part.



△ Fig #7

▽ Fig #8



If you want to talk tiny details and tight tolerances, take a look at the part shown in Fig #8. This part has more than 1,000 slots with a width of .007" on an angle around its periphery. The tolerance on the width of the slots is +/- .0003, however, the 1,000+ slots must have repeatable accuracy of .0001 on an individual part!



△ Fig #9

An innovative application of Small Hole EDM is pictured in Fig #9. The part is required to be serialized with permanent marking; however AccuPrompt does not currently have a laser-engraving machine. Well, why not utilized the CNC hole popper to produce dot matrix marking! That's "Job Shop" ingenuity at its best.



△ Fig #11

Fig #10 ▷

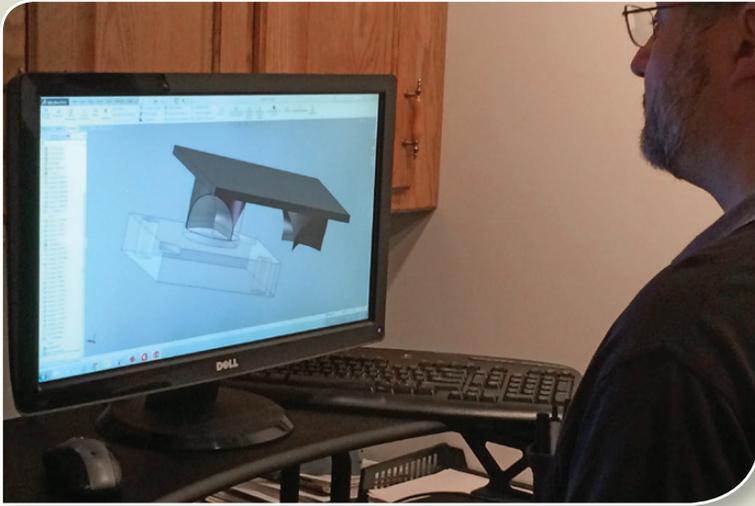


As a result of a long-standing association with Kleiss Gears, a leader in precision molded gears; Scott has aligned himself as a reliable source for gear cavity and electrode production.

Understanding the complexity of true precision gear geometry, and how to incorporate those specifications into involute programs which take into account precise shrink factors and the spark gap associated with the development of electrode or cavity production, is how AccuPrompt has positioned themselves as a resource leader in the field.

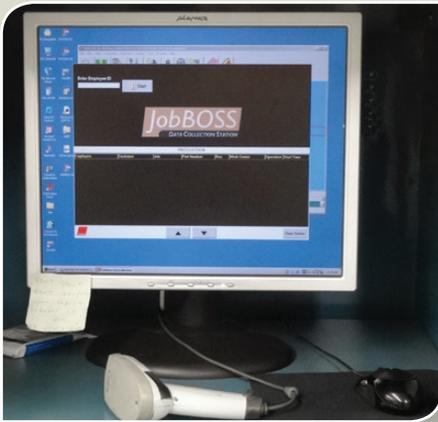
AccuPrompt is the supplier of high precision master gears, gear cavities for injection molds, gear electrodes for civilian and military applications. (See Fig.10) The company has qualified their results by attaining certified AGMA Class 13 accuracy on a consistent basis.

In addition to utilizing state-of-the-art late model machines, AccuPrompt still productively employs a number of "vintage" machines, including a five Mitsubishi SZ machines. (See Fig #11) For many of their small wire applications where high cutting speed is not an issue, older machines, if properly and continuously maintained, can still be productive. All AccuPrompt Wire EDM's are laser checked and compensated annually. Hmmm ...there's that "M" word again. (See the Tech Tips article in this issue.)



◁ Fig #12

In today's world, computers and software are also essential ingredients for a successful shop in addition to productive and accurate machines. AccuPrompt currently utilizes SOLIDWORKS® Enterprise PDM (See Fig #12) to import and manipulate customer supplied digital models prior to generating machine code with their CAM system. In order to effectively manage their manufacturing processes, AccuPrompt utilizes JobBOSS software with multiple data collection terminals throughout the shop. (See Fig #13)



◁ Fig #13



Looking toward the future, Scott envisions additional micro EDM machining capabilities, increasing his milling capabilities and additive manufacturing.

I would like to express my thanks to Scott Hoffman and Dan Noonan for their gracious hospitality and for the highly detailed tour of the AccuPrompt facility. EDM Today salutes AccuPrompt as our Spring, 2015 Top Shop.

◁ Scott Hoffmann (Left) and Dan Noonan (Right)