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By EDM'ers for EDM'ers



bedra
intelligent wires

This is a unique dual case study. It introduces Webster EDM, a growing Wire EDM job shop, but also gives us a sneak peek at the next generation Gamma class wire made by bedra that could be a game changer when it comes to productivity.

Webster EDM was founded in January of 2021, right at the peak of the COVID impact in the USA. Yet despite a terrible time to start a business, Webster flourished, growing during a time when many companies struggled. The main reason behind Webster's success is the drive and dedication of founder Pete Smith. EDM Today recently visited Webster to learn about the company and the business strategies that allowed Webster to grow during this incredibly challenging time.

Pete Smith has a rich EDM pedigree. He started Webster with 35 years of Wire EDM experience under his belt. Pete began his career on the East Coast in the late 80s. In 1995, he relocated to Chicago and continued to get Wire EDM experience, working in a mix of industries. In 2015, Pete accepted a position at a German owned mold making company in Georgia. He continued to gain Wire EDM experience. In 2021, Pete decided to strike out on his own.



*Pete Smith
Founder Webster EDM*

Webster is a Wire EDM job shop in the truest sense. They do a mix of work from many industries, including aerospace, medical, and automotive. However, now that they are in their fourth year of business, the mix of work has shifted somewhat to most of the work being medical. Pete explained that Webster has developed a reputation for producing very high precision work. While all their customers appreciate a highly accurate part, the medical industry is particularly demanding. With few shops being able to produce parts meeting these requirements, medical work has naturally gravitated to Webster.

Wanting to better understand how a start-up company at the peak of COVID could establish themselves and experience growth, EDM Today asked Pete for the secret to their success. Pete explained that it is no secret. He did his marketing research online. Using social media tools, such as LinkedIn, Pete found potential customers and called them. No doubt Pete's experience was evident during those initial conversations and customers decided to give Webster a try.

Pete added that, once work began coming in the door, he knew what he needed to establish Webster as the customer's primary source. Pete calls it the "Wow Factor." They always strive to provide a better finish than the customer is expecting and tolerances that exceed customer expectations.

In addition to the quality of the work, Pete talked about the customer service experience. It is Pete's goal to turn quotes around in no longer than 24-hours. He finds that a quick turnaround on the quote is extremely important to his customers, and one of the reasons that he is seeing his company grow.

Pete also talked about the idea of being approachable as being extremely important to the customer. EDM Today asked Pete to elaborate. Pete stated that most customers appreciate it when they get suggestions on how to improve the manufacturability of their parts.

This combined approach to business has left Webster in an enviable position. They have thus far not needed to do any advertising. Their existing customers are giving them more and more work, and they are getting new customers strictly by word of mouth.



*Chris Frost
bedra Director of Sales and Marketing*

In the Summer of 2023, Chris Frost, Director of Sales and Marketing for bedra, was looking to select some shops to evaluate a new product developed by bedra engineers. It is bedra's new blac technology wire. It has the potential to be an industry game changer with respect to performance.

Before making the wire available through its many commercial channels, bedra wanted to vet the wire through a series of hand-picked shops that can verify the performance characteristics of this new wire. Chris told EDM Today that Webster EDM was selected as one of the test sites for several reasons. Their mix of work between aerospace, medical and automotive makes them a perfect candidate to test among the different materials the various industries use. The automotive people utilize typical tool steels such as P-20, H-13, and A-2. The aerospace industry typically uses various high nickel alloys and superalloys, as well as other structural materials such as titanium. The medical industry also uses titanium, as well as various stainless steel specialty alloys.

Chris added that Webster was also selected because of Chris' experience and ability to modify a machine's technology to determine the limits of how fast the blac technology can cut. However, Chris explained that bedra also wanted to see if there is a downside to the new wire technology. Chris believed that Webster could find any issues that needed to be addressed prior to the new wire becoming available.

Chris sat down with EDM Today to talk more about the new blac technology wire. The blac coating is significantly different than typical Gamma class wires. The blac technology is an innovative coating that combines a micro structured surface with tiny aggregates of semiconductor materials, which are uniformly distributed and embedded into the surface. The result is that more energy is transferred into the workpiece with each spark, which of course results in an increased amount of material removed with each spark. However, that is only part of the benefit. The consistency of particle distribution within the coating promotes better stability and a higher percentage of cutting pulses to be applied to the workpiece. The combined result is a faster cutting rate.

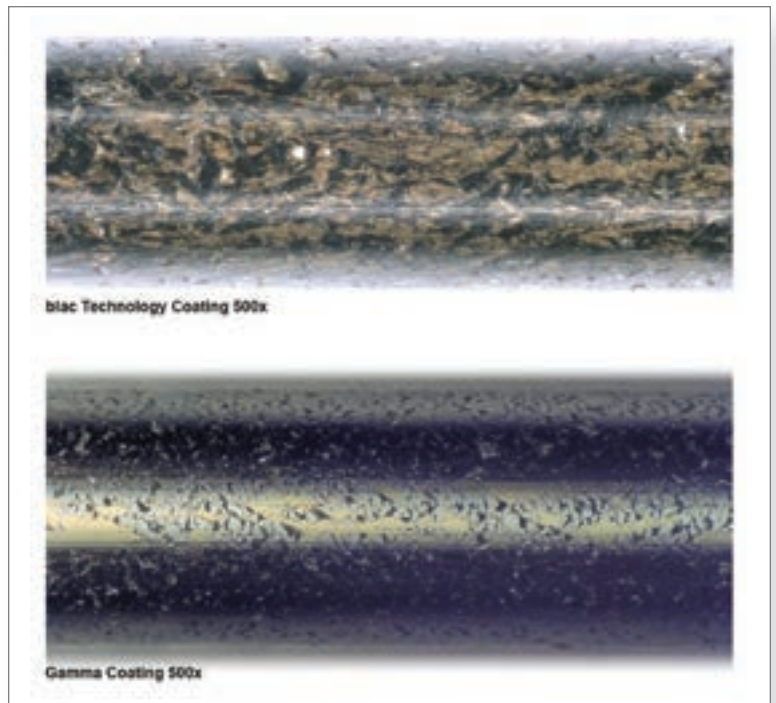
This consistency can be seen by looking at a 500x view of the blac technology coating compared to a view of typical Gamma coating. It is visually apparent that the consistency of the coating is much greater than that of the Gamma coated wire.

bedra plans to make the blac technology wire available in two different versions: **blacspark H**, which is a high tensile strength wire recommended for up to four cuts, will be initially available in diameters of 0,20 / 0,25 / 0,30 mm; and **blacspark S** is a soft version designed for taper cutting. It is also recommended for four cuts and will be initially available in diameters of 0,25 and 0,30 mm.

Both products are available with K160, K200, P5, P10 and P15 spool types.

Aside from differences in tensile strength, both **blacspark H** and **blacspark S** will support the highest possible level of energy efficiency.

Chris further explained a bit about the bedra brand purpose. bedra considers itself responsible for enabling customers across industries to develop innovative solutions for society through its services and products. Thanks to bedra's high-tech product solutions, innovations are always enabled.



This results from continuous development and research by bedra specialists around the world and leads to new or improved products. bedra's intelligent wire solutions are a central component of countless everyday products that make people's lives and work easier. bedra – with its production sites in Germany, Vietnam and China - accepts its responsibility to be the engine of progress.



During EDM Today's visit with Webster EDM, Pete Smith shared some of his initial results. With titanium, blac technology wire has demonstrated a 100% 1st pass roughing speed increase over standard brass wire on a part 3.5" thick. Test cuts on A2 steel have shown a roughing speed increase that averages 47.5% faster than standard Gamma class wires. These results are based on this specific application at Webster EDM.

Pete Smith, Chris Frost and Brogan Smith in Front of Webster's Makino U6i

Webster's test cuts were performed on their Makino machines – models U6i and U3b. Both machines are equipped with Makino's Crystal technology.

Pete added that, while roughing speed was faster, there was greater overburn. This was, of course, expected, and Pete was easily able to compensate for it.

Thus far, Webster's testing has shown roughing speed to be significantly faster. However, the finishing speed has been identical to other Gamma class wires. Pete explained that this is primarily because the Makino control does not yet have technology that has been optimized for the new blac technology coating. The roughing speeds were increased because Pete tweaked the settings. He has not yet done that with finishing settings. He suspects that once the technology is developed for blac technology, the data will show that finishing will be faster.



Webster Test Cut Showing Surface Finish and Fit

Webster testing also found that surface finishes indicate that there are no discernable differences between the resultant surface finish of any cut. Finishing with blac technology coated wire is essentially the same as using a standard Gamma class wire. Peter showed several sample test cuts that showcased their ability to produce great fit and surface finish.

Based on their own testing, there is no doubt that Webster EDM will be one of the first companies that will order the new **blacspark** wire.

Pete Smith continues his growth path. He plans to add another Makino U6i in the Spring. He also plans to expand into offering EDM Sinker-based contact manufacturing, and in-house electrode fabrication.

Both Pete and Chris are cautiously optimistic about the results of the testing thus far. Aside from the increased overburn, which was expected, they have not seen a downside to the new **blacspark** wire. But they both emphasize that these are preliminary results.

Chris emphasized that bedra will not release the new wire for sale until they are completely satisfied with the performance and have captured data from many sources. Webster EDM is just one of many companies that are testing and collecting data. One thing is certain, if test results continue to come in as Webster has found, this new material will set a new standard in wire performance.

About bedra

bedra[®]

bedra is a top international manufacturer of high-quality precision wires of non-ferrous metals. They distinguish themselves in the market through high quality and smart services with an absolute customer focus. This has been a long tradition for them – ever since the company was founded in 1889. Their ability to innovate, along with their well-known reliability, has set them apart. These two strengths have made bedra a leader in quality and a leader in the market. Year after year, their plants produce more than 30 million kilometers of precision wire – in over 100 alloy versions. The bedra business units are: bedraWELDING, and bedraELAS.

bedra is known for customer-specific solutions across all service areas. Their highly qualified employees play a major role in this. They also rely exclusively on high quality metals for manufacturing their products. This makes bedra innovative high-tech precision wires absolutely alloy-pure.

<https://www.bedra.com>

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REVOLUTIONIZING EFFICIENCY: **blac** TECHNOLOGY BY bedra

20% faster than gamma phase wires & 40% faster than brass wires

highest level of energy efficiency

recommended for up to 4 cuts

our **blacspark**
The successor of gamma phase wire

OUR PURPOSE:

ENABLING PROGRESS

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