Sometimes one can search all over the world for a gem, only to discover that there’s one right in your own back yard. Such is the case with Turbine Technologies, Inc. I’ve traveled world-wide to bring our readers stories of EDM excellence, but for this issue’s Top Shop, I only had to travel ten miles to Farmington, CT to find an aerospace EDM powerhouse.

Turbine Technologies specializes in the production of components for both aero and industrial gas turbines, and I was amazed by the number of essential gas turbine components that require EDM.

These include, but are not limited to:

- **Turbine blades and buckets**
  - Round holes
  - Shaped holes
  - Angled holes
  - Root forms

- **Shrouds**

- **Combustion chamber components**
  - Dome plates
  - Swirlers
  - Combustion liners

- **Vanes and nozzles**
  - Cooling holes
  - Seal slots
  - Interior cavity holes

- **Honeycomb**

In fact, gas turbine engines, which are essential to the military, air transport, and energy sectors or our economy, would not exist without EDM.
Let’s begin our story with a timeline of the history of Turbine Technologies:

1963 Omega Corporation is founded in Bloomfield, CT by four partners, and is awarded a Pratt & Whitney vendor code.

1971 Omega moves to Newington, CT.

1973 Omega moves to Kensington, CT.

1978 Omega awarded General Electric vendor code.

1985 Robert Burke purchases Omega, which at the time was a 7 machine Sinker EDM shop.

1987 Omega adds Wire EDM capability.

1988 Omega adds Airflow Testing capability.

1995 Omega Corporation changes its name to Turbine Technologies, Inc. and has grown to a 100 EDM shop.

2007 Tyler Burke appointed Vice President.

2009 Turbine Technologies awarded Rolls Royce vendor code.

2011 Turbine Technologies awarded GE Energy vendor code.

2011 Turbine Technologies awarded FAA Repair Station Certificate.

2013 Tyler Burke promoted to President.

2013 Tyler Burke acquires Turbine Technologies

Just to be clear, this is not a story of an owner’s son just waltzing in and taking over his dad’s company. Tyler Burke started from the bottom at a very early age…..sweeping the company parking lot.

Today, Turbine Technologies successfully services the crème de la crème of the aero and power gen industries, including but not limited to:

- Pratt & Whitney
- GE Aviation
- GE Energy
- Rolls Royce
- Solar
- Honeywell
- ABB

as well as a host of Tier 2 OEM suppliers. Their customer base and work load is split between IGT and Aero turbine work, with the Aero work split between military and civilian markets.

Earlier in this article, I called Turbine Technologies an EDM powerhouse. Let’s examine exactly what that means:

- Sinker EDM
  - Large Sinker EDM – 35 machines
  - Large CNC Sinker EDM – 2 machines
  - Medium Sinker EDM – 25 machines
  - ZNC Sinker EDM – 12 machines

- High Speed Small Hole EDM – 6 machines

- Wire EDM
  - Large Wire EDM – 4 machines
  - Open architecture EDM – 8 machines

That’s 98 EDM’s with more on order!

Turbine Technology’s equipment list includes a variety of machine types and vintages, since due to the nature of turbine component work, much of which is accomplished with special fixtures and multiple electrodes in special holders, the latest and greatest technology is not always required to get the job done efficiently. In fact, some jobs can only be done on older “open architecture” machines that allow tooling and parts to extend way beyond the normal machine work envelope.

<Just one of numerous aisles in the plant packed with EDM's.
Maintaining and repairing a stable of machines, a number of which have been out of production and are no longer supported, is essential to reliable production. Turbine Technologies has developed the in-house capability to not only maintain its EDM’s, but also troubleshoot and repair electronics down to the board level if required.

As mentioned earlier, specialized, custom designed fixturing is at the heart of efficient turbine component EDM production. As a result, Turbine Technologies has developed substantial in-house design and build capabilities for both tooling and electrodes. They utilize Solidworks as their CAD platform which is linked to Mastercam, their CAM platform, giving them the capability to import and design fixtures for 3-D models of the parts they have to EDM.

It goes without saying that quality is Job #1 when it comes to any aerospace production. Turbine Technologies is an “A-Rated" supplier and certified for OEM self-release programs with most of the OEM prime contractors. They have a fully staffed QC department with three CMM’s and optical comparator capabilities. As testimony to Turbine Technologies quality commitment and results, they have been awarded the following quality accreditations/certifications:

- NADCAP-Merit Program
- ISO 9001:2009
- AS9100:2009 Rev C

Burning seal slots on four parts in special fixture.
Since Turbine Technologies produces numerous defense-related components, they are also ITAR-Registered with the U.S. Department of State.

Managing a large scale aerospace machining operation with 66 employees, demanding tolerances, and unforgiving delivery schedules is no small task (you don’t want to have a Boeing 747 sitting on the runway waiting for parts due to your late delivery), and could be compared to directing a complex military operation. In the case of Turbine Technologies, two key members of its management team have utilized their military experience, as well as their organizational and leadership skills, to successfully manage this complex operation to exceed customer expectations while directing a profitable enterprise.

Tyler Burke, President and CEO, is an MBA with 17 years of service in the U.S. Army Armor and National Guard. Tyler has also earned a Lean Six Sigma Black Belt. Combined with his 20 years of service with Turbine Technologies, his educational training and military experience have served him well as he leads Turbine Technologies forward.

Max McIntyre, Vice President, was a Master Sergeant (MSG) in the U.S. Army Special Forces and retired from active duty after 23 years of military service. Upon retirement from active federal service, he was hired as the Command Sergeant Major (CSM) for Norwich University, the Nation’s oldest Senior Military College. He instructed Tyler when he was a cadet at Norwich University. He was contacted by Tyler shortly after his retirement from Norwich University and hired to become part of the management team at Turbine Technologies. Max is also a Lean Six Sigma Master Black Belt and has been with Turbine Technologies for seven years.

The Turbine Technologies, a 100% veteran owned and operated company, is committed to both patriotism and support for those who have served this country’s military. [Editor’s Note: Tyler Burke is a combat veteran, having served with honor in both Iraq and Afghanistan.] Turbine Technologies currently employs 14 military veterans from 4 countries.
Turbine Technologies recognizes that continued success depends on a lot more than just machines. With an average employee tenure of 16.5 years (and one employee with more than 30 years of service), numerous dedicated employees with decades of experience and loyal service are the company’s most valuable asset. With events such as the employee family picnic shown in the accompanying picture collage, Turbine Technologies demonstrates its dedication to its loyal employees.

In addition to caring for its own employee family, Turbine Technologies also supports the community that surrounds it. As an example of its charitable public spirit, earlier this year Turbine Technologies donated $20,000 to Connecticut Children’s Medical Center to support their Farmington Surgical Center.

Ah, so what’s with the Leaning Forward title to this Top Shop article? I thought you’d never ask! With two of its key officers awarded Lean Six Sigma Black and Green Belts, you would be correct in assuming that the Lean discipline would be engrained in Turbine Technologies management philosophy. Leaning Forward means a practiced doctrine that is a combination of never being satisfied with the status quo and continuous improvement. In the case of Turbine Technologies, they have big plans to further improve their successful operation by implementing Lean principals to the following areas:

- Advance ERP implementation
- Recruitment
- Purchasing
- Additional equipment purchases

I’d like to thank Tyler Burke and Max McIntyre for their gracious hospitality in hosting my enlightening visit to their fine facility. EDM Today salutes Turbine Technologies for their technical achievements, ingenuity, productivity, patriotism, and community spirit as our Fall Top Shop. - Roger Kern