



From the President's Desk ...

Welcome to our second issue of Acceleron Beams into the Future. Since our first newsletter in September, 2001, many changes have taken place in our country and the world. We at Acceleron would like to extend our condolences to the families and friends who lost loved ones in the September 11th tragedy. Our nation has been experiencing difficult times by which we all have been affected. Although the economy has continued to struggle since that day, we have all had to go on and proceed to build on what has made us strong in the past.

En-BeaM, our sister company, continues its growth with current production and is now expanding into new industries such as petroleum and food. As our customer base grows, we will continue to expand our electron beam drilling services with new techniques and applications. For more detailed information, see our article on page 2, or call us, and we will gladly answer any questions that you may have.

Thank you for taking the time to review our fall newsletter. We hope that you continue to find our publication a valuable source of information.

Sincerely,

Rory Montano, President

For Local Machine Shop, Acceleron's Service Proves to be Anything but Typical

Conntech Products Corporation, a contract manufacturer of machined components located in Cheshire, Connecticut, first came to Acceleron in 1998 with a subassembly for a surgical instrument used for intestinal surgery. As with most manufacturing companies today, Conntech was faced with the constant challenge of finding ways to reduce waste, lower cost and shorten lead times.



Acceleron produces this subassembly for Conntech Products Corporation by welding two halves (bottom) to form a "barrel" (top).

Part of the subassembly includes a stamping that requires the welding of two formed halves into what is referred to as the "barrel." The dimensional requirement of the barrel is critical and requires a striking process or qualifying process to bring the roundness into tolerance. It was Conntech's goal to eliminate the qualifying process, reducing the cost of the part and the need for further handling. Acceleron's engineering and development group welcomed the challenge and worked on a tooling concept and welding process that would shape the barrel to meet the critical dimensions. With the elimination of the qualifying process, Conntech realized significant savings in both lead time and cost, which were passed on to their customer.

With an annual volume of almost 250,000 parts, Acceleron continues to meet weekly on-time delivery, which is critical to Conntech and their customer.

See "Conntech requirements met" on page 4.

NASA's AIRS is Successfully Launched

Our first newsletter featured an article on the stress-free welding services that we performed for NASA's project AIRS, as contracted by BAE Systems, Inc. of Lexington, Massachusetts. This atmospheric infrared sounder was designed to provide highly accurate data on the earth's atmosphere, land and oceans for climate studies. With AIRS on board, NASA's spacecraft AQUA was successfully launched from Vandenburg Air Force Base by a Delta II rocket on May 2. We at Acceleron are proud to have played an instrumental role in the construction of AIRS, and we look forward to hearing about the impact it has on weather forecasting.

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Electron Beam Drilling: Unique Features Provide Special Capabilities

As a machining process, Electron Beam Machining (EBM) is often mentioned along with Laser Beam Machining (LBM), Electrical Discharge Machining (EDM) and Electro Chemical Machining (ECM). These nontraditional techniques are used when the requirements exceed mechanical machining and drilling capabilities, or because they have overriding cost advantages. Compared to other hole drilling techniques, the electron beam process has unique features that give it special capabilities for hole drilling over a wide variety of applications.

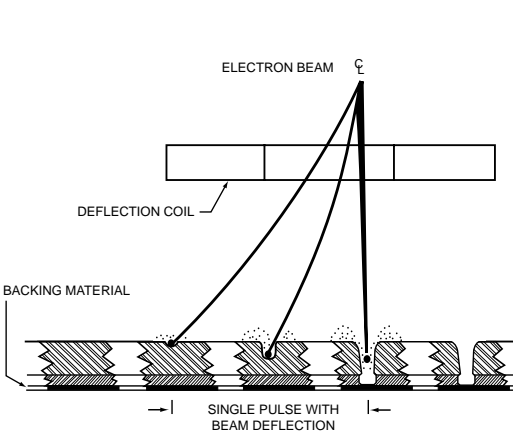
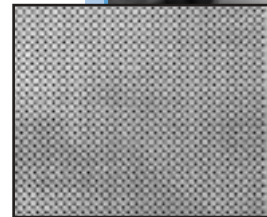
The Drilling Mechanism

This thermal drilling process is so efficient that only a small percentage of the input energy remains in the work piece. With a velocity of 65% of the speed of light, the electron beam is focused into a small round spot measuring just a few thousandths of an inch, with a power density of 10^8 watts per square inch. As the beam penetrates the material, the temperature rises initially at a rate of over $1,000^\circ$ Celsius per microsecond, causing localized melting and vaporization. As this heating continues, a high vapor pressure in the center of the cavity presses the molten metal radially outward and upward, allowing the beam to penetrate through the vapor and rapidly deepen the cavity. Backing material with special properties is placed behind the work piece. When the beam drills the hole and enters the backing material, additional high vapor pressure is generated, ejecting the molten metal upward and leaving a clean hole with minimum recast.



Above: Spot inspection of drilled components is a critical function in maintaining accurate hole diameter criteria.

Left: .004" diameter holes drilled in .060" thick 316L stainless steel.



Drilling on the fly results in the most efficient way to process holes.

The Unique Features of Electron Beam Drilling

- Process is a noncontact thermal “tool”
- High power density is focused into a small spot
- Critical beam parameters can be adjusted electronically at high speed
- Can produce inclined holes at various angles to the surface
- Drills on a continuously moving target to maximize drill speed
- Provides a drilling rate up to 2,000 holes per second in thin sheet metal
- Can drill material thicknesses from 0.002” to .200”
- Drills holes from 0.002” to 0.040” in diameter
- Is capable of an aspect ratio (depth to diameter) of 25 to 1
- Hole profiles can be taper, cylinder or bell

New Applications

For the past 14 years, our sister company, En-BeaM, has been using Electron Beam Machining primarily for customers in the paper and pulp industry. The screen plates and filter baskets we have been drilling and manufacturing are typically 12” to 45” in diameter. Standard hole sizes are .004” to .015” in material thicknesses from .060 to .187 stainless steel.

Because of recent demands in other industries that require smaller holes, En-BeaM continues to explore and has developed new processes and tools. We currently drill 0.002” and 0.004” holes in small tubes down to 1/2” diameter. En-BeaM primarily supplies products that filter liquids from solids, and we are now developing this technology to drill exotic materials used for cooling in the aerospace industry and for diffusing highly corrosive gases in a variety of chemical industries. This is all part of En-BeaM’s continued commitment to develop and implement cost-effective processes and techniques.

Personnel News

Jennifer Pennington Promoted to Shipping Department

Jennifer Pennington, who joined Acceleron in November, 2000, was recently promoted to our shipping and receiving department and continues to improve its organization and efficiency. Her main responsibility is to work with all departments to ensure the accurate and timely processing of our customers' orders, from receipt to shipment. Customer satisfaction and timely deliveries are her primary objectives. We are confident that, with her personality and pursuit of perfection, Jennifer will prove to be an asset to this department.

Jennifer holds a Bachelor of Science degree from the University of Hartford and recently transitioned from the medical field after 23 years of service. She is an avid gardener who also enjoys auto racing events.



Jennifer Pennington

Introducing a New Member of Our Staff

Mike Dowd has joined Acceleron as our new Project Engineer, replacing Bill Ross, who has recently retired. Mike was the President of Jadco Corp. for over 20 years. This company specialized in the design and manufacturing of custom fixtures and tooling for a wide variety of industries.

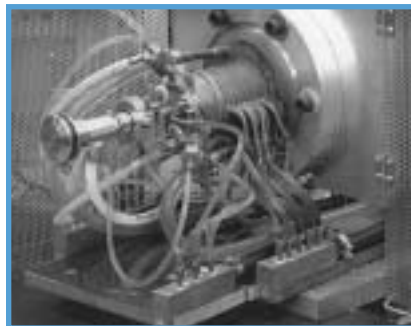
Mike brings with him a strong business background in the areas of engineering, marketing and customer commitment. He lives in East Longmeadow, Massachusetts with his wife, Kerry, and two sons.



Mike Dowd

Plasma Arc Window Development On Schedule

We are currently on schedule with the development of the plasma arc window. Acceleron has designed and built the mounting structure and the plasma arc window. The power supply and control are 90% complete. The expected bench test date was scheduled for September. Once the bench test is complete, we will then install the plasma arc window into our modified electron beam welding machine.



Early plasma arc window prototype

We are very encouraged with how well the program has been going to date and feel confident that future testing will continue to go as well. Visit our Web site at www.acceleron-enbeam.com for further updates on this ongoing program.



Acceleron President Rory Montano accepts a grant check for the plasma window development from Scott Richlen, Director of the Office of Industrial Technologies for the United States DOE.

Acceleron Bids Farewell to Two Longtime Employees

Duyen Vo – the third employee hired by Acceleron more than 21 years ago – retired in November, 2001. He was a valued employee and was integral to the success of our second shift while serving as shift supervisor. Duyen's wife and many family members are still employed with us. He and his wife recently returned to their home country of Vietnam to visit many relatives whom they had not seen for quite some time. Duyen will be remembered and missed by everyone he worked so closely with at Acceleron. The Montano family thanks him for his many years of service.



Duyen Vo

After 18 years of dedicated service, Bill Ross, our Senior Project Engineer, retired in May, 2002. Bill



Bill Ross

played an extremely vital role at Acceleron with his vast knowledge of both electron beam and laser technology. He has been a mentor to many of our young employees. Bill has also maintained good working relationships with our customers over the years, overseeing their programs from development to production. Our staff and many of our clients will miss him.

Bill is an avid fisherman and plans to spend much of his retirement fishing up north with his wife, Danielle. Acceleron and the Montano family thank Bill and wish him well in retirement.

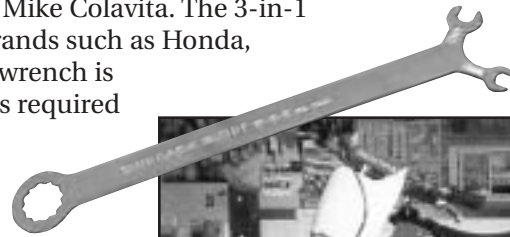
Visit our Web site to learn how Acceleron does it all – under one roof!
www.acceleron-enbeam.com

Acceleron Wins Wrench Contract with Our New Laser Cutting Capabilities

Acceleron has been awarded a contract to develop and manufacture a motorcycle kit wrench for Swingarm Buddy, a New Jersey-based company owned by Mike Colavita. The 3-in-1 wrench is used for adjusting the drive chain on motorcycle brands such as Honda, Yamaha, Kawasaki and Suzuki. Due to its unique design, this wrench is advantageous to riders because it reduces the number of tools required for drive chain adjustment.

This is a full manufacturing contract, whereby Acceleron purchases the material, laser cuts three different sizes, then mechanically engraves the Swingarm Buddy logo and wrench size on each handle. With our new laser cutting capabilities, we are able to get a clean, accurate laser cut through .250 thick hot rolled steel, eliminating any secondary operations to the laser cut. Other processes consist of heat-treating to 48-52 Rockwell and tumbling for a smooth surface prior to a black zinc finish for an appearance that is attractive to the consumer.

This wrench is now being marketed for the first time. We wait in anticipation for a positive consumer response to this unique tool.



The Swingarm Buddy is a 3-in-1 tool for motorcyclists.

Quality Update from Acceleron

Our new noncontact measuring system, the Quick Scope, is quickly becoming an invaluable tool in our Quality Department. The Quick Scope can be both a manual and a fully automated system. Using this imaging technique ensures that there is minimal variation in the inspection process as parts are inspected free of operator handling or intervention.



The Quick Scope is becoming an invaluable part of Acceleron's inspection process.

The Quick Scope aids greatly in obtaining the most precise measurements of a variety of parts (to within .0002"). These precise measurements are vital in the development phase of new applications, as well as in all levels of inspection necessary for daily workflow. The Quick Scope is rapidly becoming an integral part of our inspection process and has aided Acceleron in its efforts to meet today's quality demands.

Conntech requirements met

(continued from page 1)

Renée Lauzier, Program and Operations Manager at Conntech Products Corporation, shares her views on her company's relationship with Acceleron: "Acceleron was diligent in working on a process that brought validity to what many thought could not be accomplished. Over the years, they have continued to meet our demanding requirements and conducted business in the same professional manner that they exhibited from the beginning."

In addition to this medical application, Conntech also contracts Acceleron to laser engrave the carrying handle of the M-240 rifle for the government. Since September 11, 2001, production quantities have tripled. Conntech has been under increased pressure to deliver larger quantities on a daily basis to meet our country's military demand. Acceleron helps ensure that deliveries are met by being "on call" with only an hour's notice. Renée Lauzier states, "We have been very pleased with Acceleron's response to our demanding requirements for the carrying handle, proving once again their dedication to meeting their customers' needs."

ACCELERON INC.

Acceleron, Inc. specializes in Electron Beam Welding, Electron Beam Drilling, Laser Welding and Laser Cutting.

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