

# Electron Beam Welder Enables Spartek Systems to Weld Batches Over 30% Faster and Reduce Rework Costs

## CUSTOMER DETAILS

### Spartek Systems

[www.sparteksystems.com](http://www.sparteksystems.com)

### INDUSTRY

- Oil and Gas Exploration

### CHALLENGE

- Electron beam welder for detailed fabrication caused production delays and material waste

### SOLUTION

- CW604 Electron Beam Welder from Cambridge Vacuum Engineering (CVE)

### RESULTS

- Improved production efficiency through significantly reduced downtime and streamlined welding
- Reduced materials costs from fewer parts requiring rework
- More accurate quality control through weld parameter tracking

## MANUFACTURER DETAILS

### Cambridge Vacuum Engineering

<http://www.camvaceng.com>

### PRODUCTS

- Electron Beam Welders
- Vacuum Furnaces

### INDUSTRIES SERVED

- Oil and Gas
- Aerospace
- Defense
- Nuclear
- Automotive
- Construction and more

## CUSTOMER BACKGROUND

Established in 1994, Spartek Systems specializes in high-tech surface and subsurface instrumentation tools for every aspect of the oil and gas industry. In addition to manufacturing off-the-shelf products, the company provides comprehensive research and development services to create custom sensors and measurement tools for clients performing oil and gas exploration. Headquartered in Sylvan Lake, Alberta, Canada, Spartek delivers innovative instrumentation tools to customers on nearly every continent, with over 120 employees worldwide.

### CHALLENGES

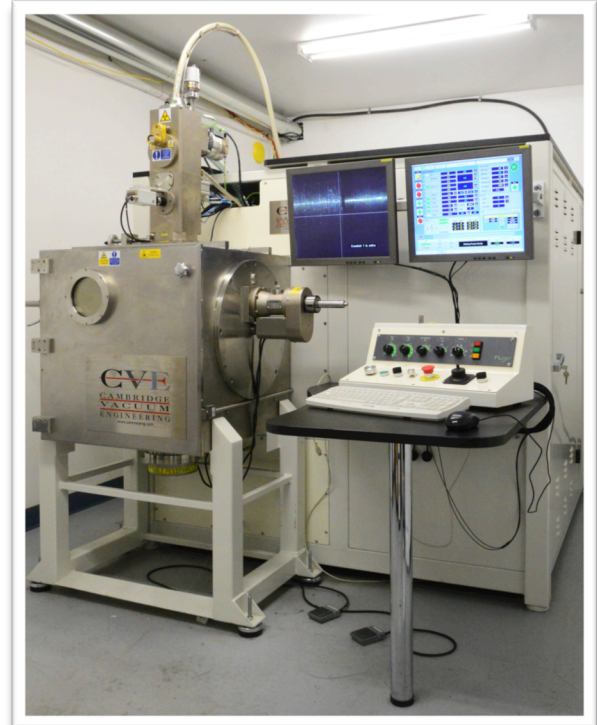
#### *Delays in Production*

Though Spartek had continually grown since it was founded, the electron beam welder used by the manufacturing department was causing significant downtime in production. “The production team was often waiting on the welding team for parts,” said Jon Pfenghanssl, Supervisor of Testing and Weld Operator. “It was an older welding machine and it was really problematic. Though it had been fixed numerous times, it continued to malfunction and cause production delays.”

#### *Costs Due to Material Waste*

The machine’s faults were also leading to increased costs due to rework. Spartek’s measurement tools are often used in very inhospitable environments with high pressures and temperatures, so they must be extremely accurate and durable. “When you need products as precise as ours, inaccurate welds have to be reworked. Since we deal with expensive alloys, rework is *very* costly,” noted Pfenghanssl.

Adding to the bottleneck was the slow response time of the welder’s manufacturer. The machine would break down in the middle of a batch, and it would often take days to receive a response from their service department.



Knowing that something had to be done to keep up with demand, Spartek employees weighed their options. They checked to see if it was viable to repair the machine again, but when they looked at the dollar value of the previous machine plus the cost of all the problems it came with, they decided that purchasing a new machine would save both time and money.

### THE SOLUTION

The welding team wanted to bring more reliability and consistency to their welds and improve their process capabilities, so they began looking into electron beam welders from various suppliers.

Spartek’s purchaser spoke to a partner company using two electron beam welders from two different suppliers in their operations. They recommended the welder from Cambridge Vacuum Engineering (CVE) as the superior unit. “We talked to people who’d used it and found that CVE had a very good welder - quality parts, helpful technicians, and they’d incorporated some very smart features into their software,” Pfenghanssl explained. “Quality is key.”

## CONTACT INFO

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CVE's welder had everything we were looking for, was easy to use, and it fit our financial needs."

CVE's welder came with the eWon System for remote diagnostics. Connected through a dedicated Internet line, eWon enables CVE's field technicians and engineers to remotely perform diagnostics, change system settings, and be better prepared in the event that onsite service is needed, all to maintain customers' productivity. Pfenghanssl noted that it seemed like an invaluable tool for reducing downtime quickly, avoiding the need to fly technicians to the site. A case in point: Another customer was once unable to start their electron beam welder. CVE's field technician was able to start the unit up, perform diagnostics, and identify the problem remotely. This allowed the customer to be up and running just 30 minutes after connecting with CVE through eWon - without the need for onsite service.

The welder was purchased in November, and it arrived at Spartek in July. They expected a slightly longer arrival time frame because of the custom configuration they selected, but were pleased with the lead time. A CVE technician flew to Sylvan Lake for 3 days of assembly and on-site training. Pfenghanssl also opted to visit CVE's manufacturing facility in Cambridge, England for training and equipment performance acceptance. He thought the engineering staff was outstanding. "Any time we've dealt with CVE staff, they've been extraordinarily helpful."

## RESULTS

### *Greater Production Efficiency*

Since installing CVE's welder, Spartek has significantly increased productivity. Besides eliminating downtime, the new machine streamlines their welding by linking multiple processes together, rather than reprogramming and loading individual programs as they had in the past. Pfenghanssl can now perform a series of welds at once, which cuts down dramatically on production time. Instead of wasting valuable production time troubleshooting the welder, operators can spend time on other more important tasks and improvements.

### *Clients Benefit from Increased Welding Accuracy*

CVE's welder has increased Spartek's weld accuracy, resulting in less waste and rework.

The parts that they weld can be quite delicate and detailed. Pfenghanssl commented, "The new machine is so accurate. There's no deviation in the beam. CVE has delivered the reliability we were looking for. We move to production faster now because there's less rework... it's right the first time." He notes, "We can get a batch of gauges through welding 30% faster than we used to." The reduced rework and downtime have sped up their process, allowing Spartek to get products to their clients faster.

### *Improved Capabilities for New Products*

Spartek selected CVE's CW604 Electron Beam Welder with a larger chamber, which (along with the new, streamlined welding capabilities) has allowed them to be more agile and flexible when developing a custom part. "In the past, we were limited as far as size capabilities. Though we didn't need to produce larger parts at the time, our clients come to us to develop new tools that meet their needs. If we'd needed to weld larger parts in the future, the chamber on our old machine wouldn't have supported those. With CVE's chamber design, we're able to fit chamber extensions, so now we're open to more production possibilities."

### *A Sales and Service Team That Cares*

With offices located in the United States, CVE has formed long-lasting bonds with its customers, ensuring that they remain happy years after their purchase. Whether they require additional EB welders or next-day emergency service, Spartek can count on the support they will receive. They've been thrilled with the communication and service they've obtained so far from CVE's U.S and U.K. offices. When they required a new temperature switch for their welder, CVE USA had a replacement in stock and immediately shipped it to Spartek's office, "faster than it would take the previous supplier to respond to my email," said Pfenghanssl. "Their responsiveness is miles ahead of the competition. When a welder goes down, you're usually mid-batch, and you can't sit and wait days to speak to someone. Even though the switch wasn't critical to operation, CVE handled it very quickly. It says a lot about their customer service."

### *Improved Tracking for Welds*

The operating system on the welder allows for tracking and recording of weld parameters, making it a valuable tool for the Quality Control program. "This was another benefit of the very easy to use, comprehensive HMI [human machine interface]. Having these values stored means that we can go back to the record (in the event that there is an issue with a part) and verify that the recipe was followed and weld parameters matched every other piece in the batch."

"The products that we make are measuring tools - accuracy is critical to our clients. CVE's welder allows us to create precise, high-quality tools and get them to our clients faster. Comparing our previous operations to the current ones, it's like night and day. Having a welder we can trust makes all the difference."

"CVE has delivered the reliability we were looking for. We move to production faster now because there's less rework... We can get a batch of gauges through welding over 30% faster than we used to."

-Jonathan Pfenghanssl

Supervisor of Testing and Weld Operator  
Spartek Systems

## ABOUT CVE

CVE manufactures customized electron beam welders and vacuum furnaces for companies in fields ranging from aerospace, defense, and automotive products to oil and gas technology. Since its establishment in the late 1950's, CVE has grown to lead the electron beam welding industry with its advanced designs and controls. With a manufacturing facility in the UK and sales and service offices in the U.S., CVE is committed to delivering quality machinery to its customers both in the U.S. and abroad.

## CONTACT INFORMATION

To learn more about how CVE can improve your welding processes, visit us at [www.camvaceng.com](http://www.camvaceng.com) or call 413.789.4600.