



Long-term partnership with ABB and evolution to Industrial IT pay off for Hemlock Semiconductor

When Hemlock purchased their first DCS system in the 1980's, they embarked on a long-term alliance with ABB. Today the partnership is as strong as ever, and still proving beneficial.

Client: Hemlock Semiconductor Corporation (HSC)
Location: Hemlock, Michigan (USA)
Scope of Work: Evolution of DCI control system to Industrial IT

“Since we’ve been using ABB systems, we’ve been able to continuously improve our process operations to maintain our position as the lowest cost, largest volume producer of polychrySTALLINE silicon in the world.”

Phil Baker
 Senior Process Control Specialist
 Hemlock Semiconductor Corporation (HSC)



Hemlock Semiconductor Corporation’s (HSC’s) long-term alliance with ABB has allowed them to utilize new technologies and realize greater system reliability.

Background

Formed in the 1960’s as a subsidiary of DOW Corning Corporation, Hemlock Semiconductor Corporation (HSC) is the world’s largest producer of polysilicon. They supply approximately 30% of the polycrystalline utilized by the world’s semiconductor industry.

The Solution

After a competitive evaluation, HSC chose ABB’s DCI control system, back in the 1980’s. Since then, HSC has expanded their systems. They now have two networks with a total of about fifty consoles and seventy controllers, making their installation one of the largest DCI systems in the world. HSC continues to upgrade and evolve their DCI systems. They recently installed an Industrial IT control system as well.

Investment Enhancement through Evolution

Through utilization of ABB’s “TCA,” product, HSC was able to convert from their DCI system to System 6 without any field wiring changes. HSC Senior Engineering Specialist Mark Richardson stated: “The software conversion is relatively easy, extremely cost effective and time-efficient. The conversion has provided us improved reliability, which was the justification for the projects. But we also found that the increased capabilities produced an economic benefit: it allowed our process to run more productively.”



HSC Senior Process Control Specialist Phil Baker added: "We've been able to evolve the DCI system and recover large amounts of our initial investment, without having to do major rewiring; major reinstallation efforts. We're also in the process of evolving into the Industrial IT systems. Industrial IT offered us the advantage of being able to put controllers in place that would do our machine level (and our) continuous process control, integrate our information needs, our operator interface needs and also match the evolutionary path for the rest of the plant. One advantage has been ABB's preservation of our installed knowledge base. This has allowed us to evolve to the newest systems and still protect our learning curves, our control strategies, our process operations - with minimum relearning; minimum loss of knowledge."

Richardson again: "ABB over the years has allowed us to utilize our intellectual properties and our hardware."

The Value of a Long-term Partnership

HSC has had a long relationship with ABB. Richardson again: "We signed a ten-year alliance agreement with ABB. One of the benefits of this type of relationship has been that ABB and HSC have worked together in more of a partnership, or a team effort, as opposed to a vendor/customer relationship. This has allowed us to be very open and to really leverage the expertise that is available in both companies."

Advantages of Early Adoption of Technology

Historically, Hemlock has been an early adopter of new technologies. Phil Baker told us this is mainly because HSC sees competitive advantages in using new technologies, and using them well. "We believed Industrial IT would be another competitive advantage for us, that's the reason we've chosen to go that path," he said.

Ease of Upgrade

Baker continued: "We like the openness of the Industrial IT system, its use of standards such as Ethernet and OPC. We feel more comfortable, and we believe this will allow us in the long run to integrate whatever we need to with the Industrial IT systems." Richardson added: "ABB has provided us a particularly good (evolutionary) path for our operations people. They provided an operator interface that, though it changed from a proprietary system to a UNIX-based system to a Windows 2000-based system, to the operations people, it was very transparent."



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Why Choose ABB?

- Investment enhancement through evolution
- Open environment
- Ease of upgrade
- Engineering for maximum performance
- Improving batch and process consistency, quality, and time.

Engineering for Maximum Performance

"Since we've been using ABB systems, we've been able to continuously improve our process operations to be able to maintain our position as the lowest cost, largest volume producer of polychrystalline silicone in the world" Baker said.

Improving Batch and Process Consistency, Quality, and Cycle Time

Baker again: "As a chemical manufacturer, we have both batch processes which complete in two to three days, and distillation columns which will run two to three years or longer. We find that the ABB control products allow us to control both types of operations and to continue to optimize both."

Looking Ahead

"Whatever we've imagined, ABB controllers have allowed us to do" said Baker. "Where are ABB & HSC going in the future? I'd like to see us go down the path of continuing to work together to our mutual benefit. I'd like to see the continued evolution into the Industrial IT line, to allow us to operate our plant to its peak capacities and optimization efficiencies."

Evolution to Industrial IT

ABB control system users all over the world improve performance and lower life cycle costs by building upon their existing ABB systems. Add the technological advances of ABB's Industrial IT offerings to get even more return from the systems you have.

For more information on ABB control systems, call us at: 1.800.922.2475 (or if not in the US: +1 585.273.6417), email us at: industrialitsolutions@us.abb.com, or log on to: www.abb.com/controlsystems.

For more information on how ABB's Industrial IT technology can be employed to solve your chemical processing issues, visit us at: www.abb.com/chemical.