



Open Platform CNC Controls and Software From Prodigm Installed on Filament Winding Fiberglass Tubular Product Line Improved Quality and Ease of Use



Duoline Technologies produces RICEWRAP®, a protective wrap of fiberglass epoxy externally applied and bonded to steel pipe for external corrosion protection on downhole tubing. The Duoline manufacturing team had challenges with the current filament winding equipment used to produce this product line.

Duoline plant in Texas produces fiberglass tubular liners for the oil and gas industry using filament winding machines.

Challenge

“The Duoline team tried to get assistance from the manufacturer of the equipment to reduce our current waste of resin and gain better control over of the winding pattern because final wrap was too bumpy for our quality standards,” stated Eric Nichols, Sr. Process Consultant & Business Development Manager at Duoline Technologies-Americas.



“The manufacturer ended up backing out of this type of support, so we started to look for outside help.”

David Marshall, the company president at that time, asked the Duoline product engineer to explore options to get the machine running efficiently. The engineer reached out to a wide range of large, mid-sized, and small filament winding companies. They narrowed the field down to the three best solutions.

Solution

After interviewing and evaluating each option, Duoline chose Prodigm because Prodigm was more focused on resolving the challenges Duoline was facing than selling any particular product. What Prodigm did instead was put together a well-thought-out specific solution for Duoline with a commitment to take care of the entire installation of their hardware and software from cradle to full production.

The team also felt that Prodigm’s standardized solution which implements only COTS components would enable Duoline to have full control over its process. It would also eliminate the problems they were dealing with as a result of being tied to the custom/closed/non cots control platform at the heart of their current manufacturing process.

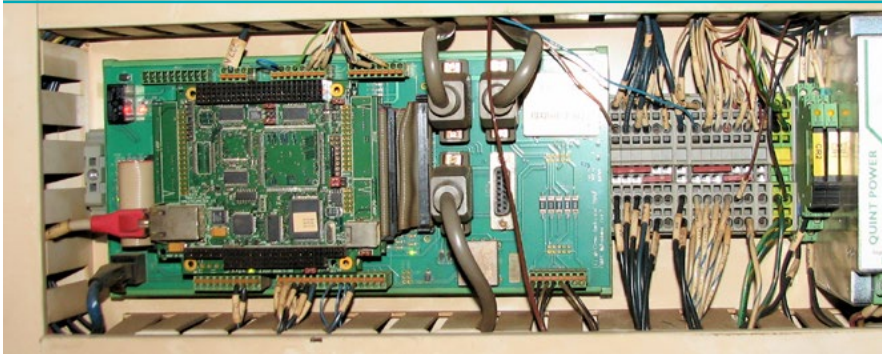
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“When equipment manufacturers start ignoring your request for support after selling you a machine it is like being held for ransom,” stated David Marshall. “It was a great decision for us have Prodigm retrofit our machine. Afterwards, we were finally in control of our production line. We no longer had to worry if the manufacturer would show up to fix our down machine,” stated David Marshall. “I highly recommend Prodigm’s open platform retrofit for filament winding equipment.”

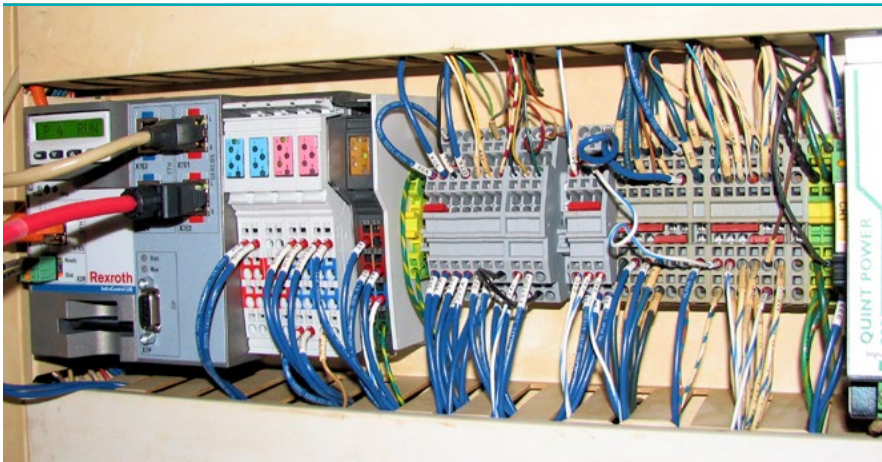


In the photo below, is the old control for the filament winding machine that Prodigm replaced. The custom circuit board is a closed platform and is not COTS. Therefore, if there is a change required or problem to address, the manufacturer is single sourced back to the original manufacturer.



BEFORE

Old filament winding closed platform control panel for producing tubular linings.



AFTER

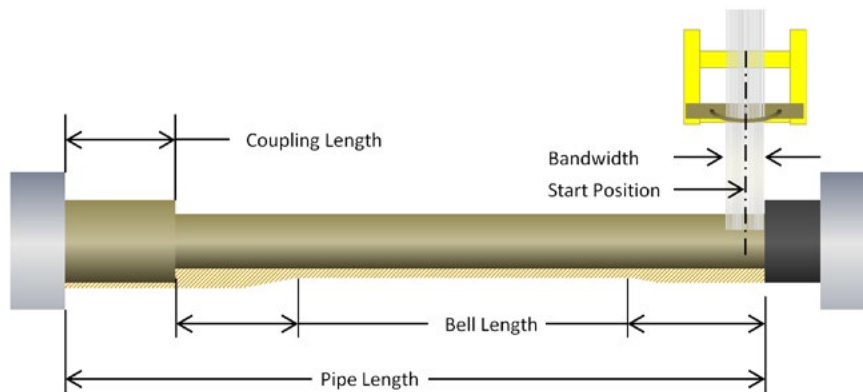
New control panel for the tubular production line equipment using Bosch's CNC open platform for long-term ease of use by the engineering staff.

A Prodigm core tenet is that a winding machine should have a controller that will accept all programs following open platform standards because that enables the client's in-house team to manage the equipment without always relying on costly outside help.

Prodigm used the Bosch CNC control because it is an open platform that accepts programming from ALL/ANY software programs as it implements INDUSTRY STANDARD methods of interpreting g-code (RS-274-D | ISO 6983 | DIN 66025). The new control included common off-the-shelf components from Bosch to make it easy for Duoline to find replacement parts, as needed.

Prodigm also developed an easy to use custom-winding algorithm to





solve Duoline production and quality challenges. After new controls were installed, Prodigm engineering team worked hand-in-hand with Duoline operations to identify problem areas in the composite laminate and developed custom algorithms to optimize the patterns providing strength where needed thus eliminating areas in the laminate that the production team was hand patching before shipping out.

Results

“It has been at least five years since we had Prodigm install the new machine controls and software. Today, we continue to produce a high quality product and have a user-friendly control system. During the installation of the new system Jeff Bassler with Prodigm was able to modify a particular process we have that gives us a much better looking product while also removing some quality issues with the product due to being able to control the winding pattern. We have also found that whenever we might need assistance, Prodigm is often able to solve the challenge remotely, saving everyone time and money,” Eric Nichols stated. “Our team continues to tell me that the Prodigm’s solution continues to be easy to use and modify when necessary.”

Retrofits to replace

WINDING CONTROL SYSTEMS

- McClean Anderson
- Engiplast
- Entec
- Cnc Technics

ANY CONTROL PLATFORMS

- Delta Tau
- PMAC
- Broken, Obsolete or Outdated

Prodigm

Prodigm is the premier maker of production-focused filament winding controls and software solutions. Prodigm leverages “best in industry” controls, motors, drives and gearboxes with a focus on user-driven solutions and customer service that exceeds expectations. Learn more at prodigm.net

Let us know how we can serve you!