

## PROJECT PROFILE

*Fully integrated process control.....Spang pulls it together for Acordis Fibers!*

**Spang Power Electronics** solved a major technology dilemma for Acordis Industrial Fibers: **The integration of stand alone equipment into a coordinated process control system.** To compete in the fibers business, Acordis must install the best of proven equipment technology available from around the world. This translates into lower cost, higher quality fibers. The best technology springs from Manufacturers that may develop communication and control protocols based on proprietary or incompatible platforms. For Acordis Fibers, linking these self-contained pieces of technology into a common, real time process control system proved formidable until **Spang Power Electronics** offered the solution.

### Background

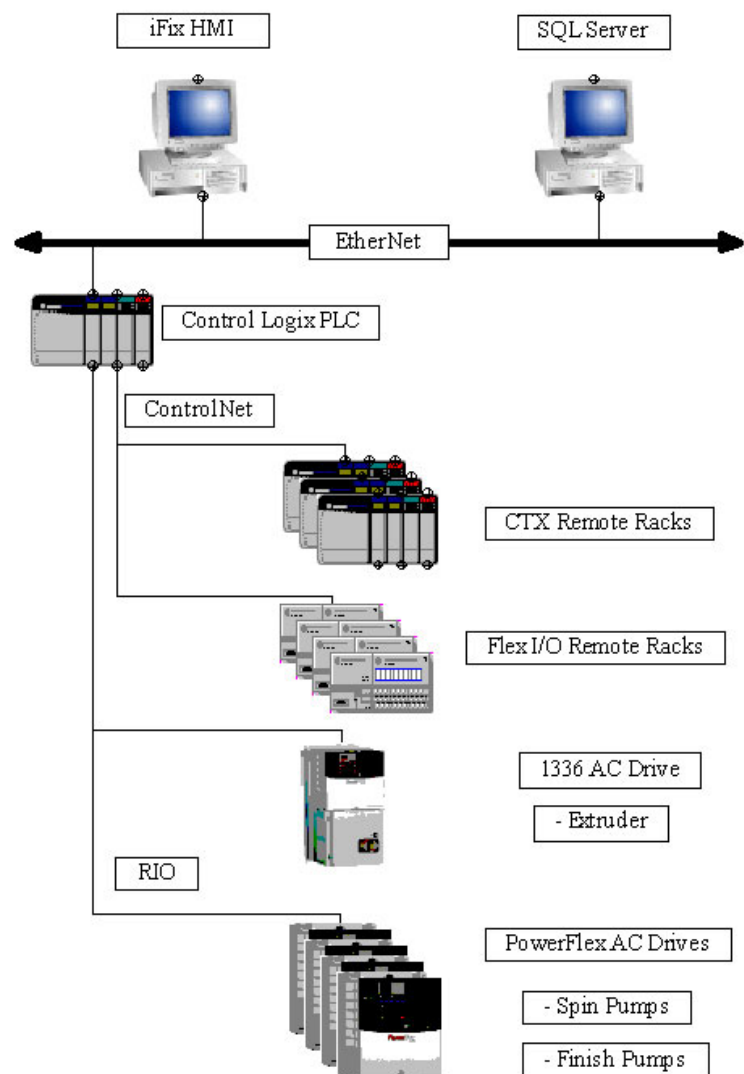
Acordis Industrial Fibers is a world leader in Nylon fiber production for life critical automotive airbag products. Acordis sought to design the next generation Nylon production line and standardize the design for use in the modular addition of capacity around the world. This strategy would accomplish multiple objectives:

- Global standard for hardware & software
- Use the “best of technology” equipment
- Minimize engineering cost of capacity additions
- Reduce lead time for capacity additions
- Rapid inter-plant migration of process improvements
- Leverage capital cost reductions from Suppliers

Acordis sought to partner with a single integrator to provide process control from **raw chip conditioning to finished inventory bar coding.** Acordis selected Spang Power Electronics (SPE) because of SPE’s unique level I, II & III control integration and custom interface capability. Spang dealt with the major control and custom interface hurdles facing the next generation Nylon project:

- Extrusion and high speed spinning process
- Multi-floor/Multi-PLC production facility
- Multi-variable process control calculations
- Custom HMI
- Ethernet network with OPC server
- Process quality data traceable to production lots
- Immense storage of process data
- Network performance to insure real-time control
- Selectable multi-lingual HMI Interface

## Fibers Spinning Line Automation System for Acordis Industrial Fibers



## Level I - Machine Control

For machine control SPE provided the following:

- Design and manufacture of the control hardware
- PLC programming
- Custom network interfaces for the Draw Stand and Winder equipment

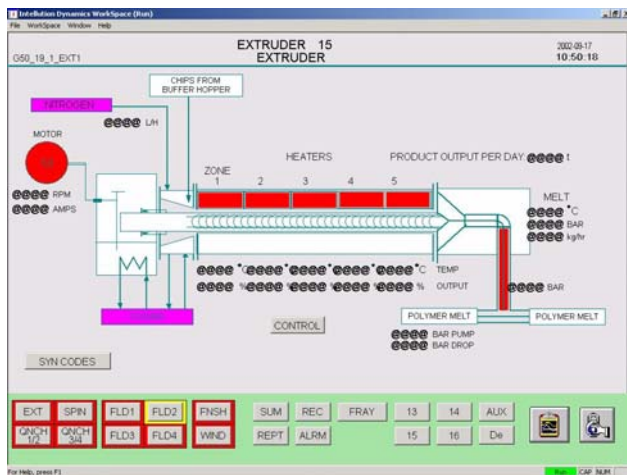
This scope included controls, programming and automation from the beginning to the end of the process. Acordis specified the control hardware components for use in the system:

- ControlLogix PLC
- Flex I/O
- Powerflex & 1336 Plus II AC Drives
- ControNet, RIO & Profibus Control Networks
- Rockwell, Square D, etc. Industrial Controls
- Spang 853 Digital Power Controller

## Level II - Operator Interface

Acordis selected Intellution iFix™ for implementing a custom HMI system. Both SCADA and View Nodes were incorporated into the total system to provide viewing and control in the multi-floor environment. Custom screens were designed, including navigation aids, allowing operators to efficiently:

- Download production/process control recipes
- View process status, set points, alarms, and data trending
- Track production and trigger bar coding output



(Sample graphic screen for extruder status and alarms)

The use of popup screens, drop down selections, VBA script and SQL interface programming along with navigation buttons provided a system that met Acordis' integration expectations.

Database storage of text displays allowed the operator to select from multiple languages for view screens. This created a system that is truly transportable to worldwide locations.

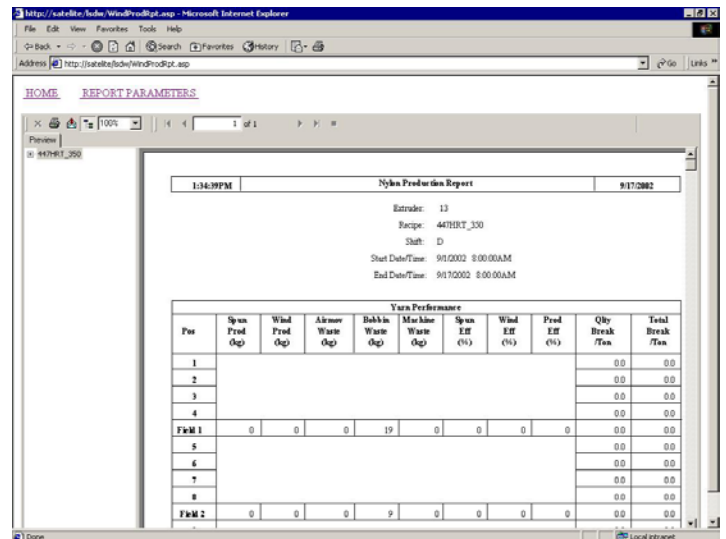
## Remote Access

Using the Corporate Intranet, different plant sites were granted secured access rites for exchanging software modifications as well as production recipes and reports.

Access to the new control system is possible via the plant LAN or phone line. Process Engineers down the hall or at R&D, miles away, can tap in to access process data. Secure links permit remote access to aid in diagnostics or modifications.

## Level III - Database

The control and monitoring system design had to meet the Acordis ISO9000 required production traceability system. Process data is inserted into a MS SQL 2000 database on an event and time basis. The communication is done over an Ethernet link.



On-Line reports are generated for all related production and quality data down to the spool package level. Using barcode labels, Acordis can track customer product beginning with raw material through palletizing and shipping to provide a history of the fiber's life.

Forms were provided for Recipe generation as well as entering lab and test data.

Key components of the database system were:

- MS SQL Database Server
- SQL Scripting
- Crystal Reports (HTML web based reports)
- InterDev Forms (HTML web based data entry)

For more details on this and other projects designed and manufactured by Spang Power Electronics contact:

Website: [www.spangpower.com](http://www.spangpower.com)  
Email: [spesales8@spang.com](mailto:spesales8@spang.com)  
Phone: 440-352-8600  
Fax: 440-352-8630

**Spang Power Electronics**

9305 Progress Parkway  
Mentor, Ohio 44060