



Results-Driven Automation



Value-Added Solutions

Success Stories
Wire Extrusion

Judd Wire Continues to Pioneer Wire & Cable Production with AC Electrical Retrofit

To continue to pioneer the kind of change that helped Judd Wire set the standard for electron beam irradiation of wire and offer the distinctive and ever-changing product mix customers require, the company is deeply committed to operating with state-of-the-art production equipment – one-of-a-kind machines that Judd Wire builds itself. All extruder lines in production, plus additional lines being added, are built with components the company buys from Japan or Germany – or as machinery freed up via excess capacity from other domestic producers.

From its 250,000 square-foot headquarters in Turners Falls, Massachusetts, and 200,000 square-foot San Marcos, California, site, Judd Wire (a wholly owned subsidiary of Sumitomo Electric, USA) manufactures automotive-, electronic hook-up-, aircraft-, and coaxial-cable-wire for a host of customers and electronic product and service providers throughout the U.S., Mexico and Canada. San Marcos, in addition to drawing down wire, extruding, jacketing, and cross-linking the insulation so that it will not melt when the wire is soldered, also cables - with the capability of winding up to 50 or more strands.



Benefits

Benefits of using ABB motors and drives on all production lines include:

- Elimination of Line Shafts
- Higher Product Quality
- Throughput Improvements
- Up to 25% Reduction in Capital Costs of Controller
- Over-speed Motor Safely
- **Elimination of Line Shafts** - Electrical drive/motor control retrofits of all machines powered with traditional line shafts, pulleys and encoder gearboxes eliminate mechanical equipment and labor-intensive maintenance. Drives' ability



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to regulate equipment speed precisely also results in *both* higher product quality and throughput improvements. “We now just plug in two fiber optic wires between the drives, three wires to each motor, and that’s it,” note maintenance electricians. “Everything else is programming.”

- **Encoder-less Operation**– Use of ABB’s unique open-loop Direct Torque Control (DTC™) feature, which enables ACS 600 drives to calculate the state (torque and flux) of a motor 40,000 times per second, to control a line’s capstan (winder) and unwinder, eliminates the need for encoders. The responsiveness of tripless drives makes them ideal to regulate the draw speed of any extrusion process – wire, jacket and/or cable. Elimination of encoders to provide feedback from motor to drive reduces capital costs for the controller by up to 25 percent, when compared to like flux vector or PWM (Pulse-Width-Modulated) drives.



- **Over-speed Motor Safety** – The flexibility to over-speed the drive and not damage the motor minimizes downtime. “For one line, we bought a large reel take-up and put it into operation on a small reel,” said engineers, “so we had to over-speed the motor so that it could run at the normal line speed, until we could get another take-up built. It kept the line in production.”

“That Scout motto *be prepared* fits,” notes Judd Wire. “To pioneer products, all of your current capabilities must be absolutely as state-of-the-art as possible.”

For more information, log on to www.abb-drives.com

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