

Case study

Jennerjahn realizes time savings up to two-thirds on new control platform implementation

Three-drum surface slitter rewinder outfitted with Siemens hardware and software achieves Category 4 safety standard with space savings and more flexibility in design

Jennerjahn, located in Matthews, Indiana, is a manufacturer of assorted lines of narrow and wide web slitter rewinders and custom machinery used by converters of point-of-sale cash register rolls, ATM rolls, lottery rolls and a variety of tape rolls, as well as a wide range of paper and other products, including laminating film, plotter paper, house wrap, landscaping products, vinyl billboard sheeting, flexible packages, box tape, roofing underlayment and other construction materials. Founded in 1978, the company also provides customer solutions for roll handling and roll packaging equipment. Today, Jennerjahn equipment can be found in markets worldwide.

On a recent job for a building products company in Australia, the Jennerjahn engineering team, led by Roger Vogel and Will Adams, was confronted with a unique set of requirements on a 120-inch wide, three-drum surface slitter rewinder, a variation of the company's standard Model JLS-120, to be used to wind a variety of non-woven web materials, used in the construction industry. The machine required five axes of motion control. The JLS line features an unwind with pneumatic braking, a driven surface winder and driven lay-on roll. The machine typically slits a web into multiple sections and the surface winder winds a small diameter roll to a precise length.

The customer required a Category 4, SIL 3 safety system, with components to support a local 415VAC, three-phase electrical power supply. As Jennerjahn senior controls engineer Will Adams explains, "We discussed the job with the applications engineering team at our local distributor, C&E Sales, and the decision was made to utilize a total package of Siemens hardware and control software, including Simatic PLC, Sinamics drives, HMI and a Profibus DP communications network." While Jennerjahn had utilized Siemens products in the past, this machine requirement was a particular challenge, owing to the safety requirements, in particular. The builder was seeking a solution that would not require adding large amounts of relays and other hardware to meet the customer needs, plus the Jennerjahn team wanted to utilize the standard controls enclosures on the JLS-120 for this job. Adams continues, "The



Jennerjahn JLS-120, a popular 120" wide format slitter rewinder, capable of producing 400-foot rolls in less than 30 seconds, was customized using a total package of Siemens controls and software. The robust frame on this machine makes it ideal for construction grade materials, such as house wrap, roofing and flooring underlayment, billboard vinyl and landscaping rolls.

integrated safety features on the Siemens S7-300 PLC, plus the ability to execute a position move within the drive and also have those drives operate within a wide voltage range allowed us to meet the Category 4 safety level for our customer." He further notes that the compact "bookend" design of the drives enabled Jennerjahn to use the standard enclosure on their machine. Previous JLS machines used AC/AC drives for all drive requirements. On this machine, there were three additional ancillary axes, so the use of the Siemens S120 booksize drive platform enabled the machine design to run all driven axes in a single drive. The use of the integrated E-POS positioning block in the S120 drive system and a high-resolution sin/cos feedback on the surface winder permitted very precise roll lengths, as well, on this application.

In addition, many of the diagnostic features on the drive software helped the builder's team with troubleshooting and start-up issues. Finally, the I/O configuration of the Siemens platform "...allowed us to keep our existing distributed I/O layout with minimal system redesign," said Adams.

The Jennerjahn team estimates that the implementation of the Siemens controls platform on this machine was achieved with a start-up time savings up to two-thirds, the result of various factors in the relationship between this builder, the controls vendor and the local distributor. Will Adams explains, "Siemens provided us design assistance to verify the sizing information and specify the required drive hardware. C&E Sales then provided a complete bill of materials to us, which saved us a great amount of time, owing to our lack of detailed knowledge about the Siemens products." Adams also notes his company received several days of onsite engineering support provided by the controls supplier to help with drive set-up, network troubleshooting and the integrated safety program modifications required on this machine build.

Roger Vogel, engineering manager for Jennerjahn, adds, "This project went very smoothly for us, because the relatively few problems we had were quickly handled by the folks from Siemens and C&E, both in the hardware and software areas, plus overall automation integration scenario. The training class we were offered was very well run and provided our team the extra information needed to successfully program the machine."

Since 1978, Jennerjahn has been a leading supplier to the converting industry and today provides an international partner to the industry, offering the most efficient solutions to customer needs on a wide variety of end uses. As a full line machine and ancillary equipment manufacturer, the company maintains a showroom of assorted automated slitter and rewind machinery, so any potential application can be tested, free of charge, according to the company's website.



Siemens controls onboard this Jennerjahn JLS-120 slitter rewinder, a specially modified machine sold to a building products customer in Australia, who required components to suit a 415VAC, three-phase electrical power supply. The machine also has three additional ancillary axes of motion. The HMI, PLC, drives package and Profibus DP communications network were all provided by Siemens through its local distributor.

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Subject to change without prior notice
INCS-JNJHN-0413
Printed in USA
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