

The Siemens logo is displayed in a bold, teal, sans-serif font. It is positioned in the upper left corner of the advertisement, set against a white rectangular background that partially obscures the underlying image of a paper mill.

SIEMENS

The background of the top half of the advertisement is a photograph of a paper mill. It shows large rolls of paper being processed by machinery, including a prominent red Siemens motor in the foreground and various rollers and guides in the background.

siemens.com/paper

SIPAPER Drives APL and SIPAPER Winder APL

Innovative drive solutions for the paper industry



The challenge

The paper industry is facing challenges that could not be more contradictory. While investment budgets are under constant pressure, customers all over the world are demanding product quality that is virtually impossible to achieve using outdated technology. At the same time, continuously rising expenses for energy and raw materials increase cost pressure enormously while the competition gets more and more aggressive.

To master these challenges, it is crucial to invest in the best technology available to render your plant as efficient as possible. This requires efficient production processes with simplified operations, optimized diagnostic capabilities, and high safety standards, combined with efficiency and minimum maintenance costs – and fast, expert technical support to minimize downtimes.

Based on our many years of experience in the paper industry, we have developed SIPAPER Drives APL, an innovative drive solution for sectional drive systems, as well as SIPAPER Winder APL, the modular drive solution for finishing machines, slitter winders, and rewinders for the paper industry.

Answers for industry.



The solution

SIPAPER Drives APL and SIPAPER Winder APL are the appropriate drive solution for paper mills, finishing machines, and slitter winders and rewinders.

Their modular concept, based on the proven PCS 7 APL technology, offers the perfect package for engineering and configuration of both sectional drives and single drives, as well as the control software and the operator interface for your paper or coating machine and simple or high-end winders.

The solution at a glance

SIPAPER Drives APL and SIPAPER Winder APL are the next generation of our highly accepted SIPAPER standard for drives and winders, as proven by many success stories in the paper industry around the world. Based on the APL technology, Siemens offers a perfectly coordinated, paper industry-specific module for today and the future. From the latest generation of high-end machines to the modernization of existing plants, SIPAPER Drives APL and SIPAPER Winder APL offer you a tailor-made solution that takes into consideration all technological and economic aspects. Its modular design and the abundance of integrated interfaces allow the respective systems to be adapted exactly to your individual standards and requirements.

The modules are based on SIMATIC PCS 7, the leading automation system worldwide, which perfectly integrates the functionality of the drives to create a powerful system with high availability. The automation controller ensures the functionality of rapid digital control and calculation tasks for the drives. The operator interface is available as a high-end operator station in server client or stand-alone architecture. Panels provide a user-friendly solution for local operation. Operator control and monitoring, including comprehensive fault diagnostics, is also offered.

The SINAMICS frequency converters let you take advantage of the highly dynamic properties and control precision of modern three-phase motors such as the gearless direct drives from Siemens. The joint system platform covers all requirements from small to large power ratings, from low to medium voltage, and for AC or DC technology.



Standardization

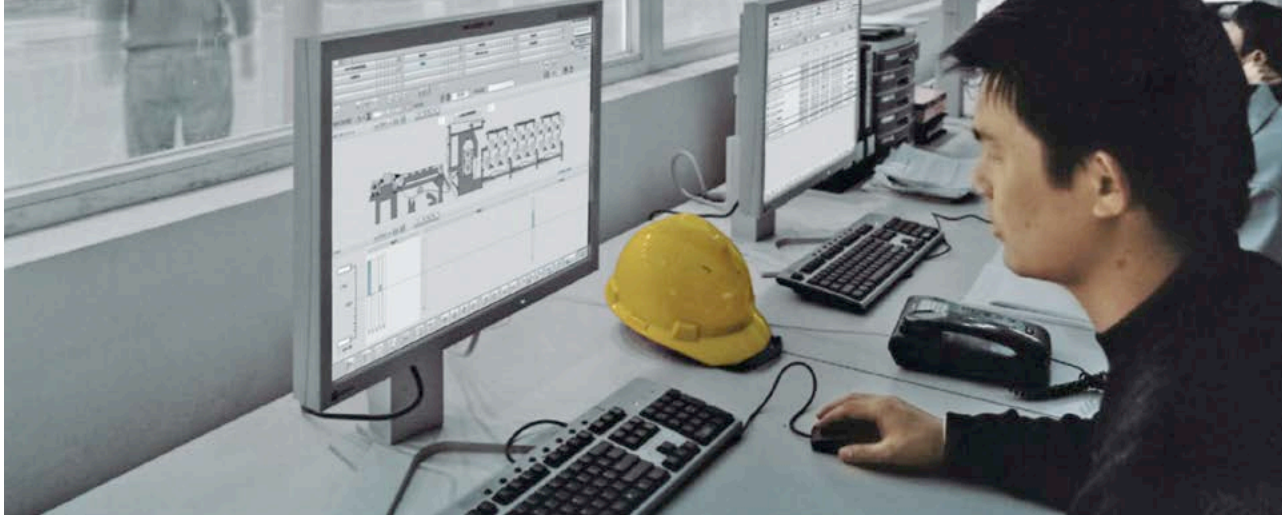
SIPAPER Drives APL and SIPAPER Winder APL are based on the modular and service-friendly PCS 7 software architecture. They are completely compatible with our other SIPAPER APL automation/drive solutions and standard PCS 7 APL solutions. This brings obvious advantages: Using one system in the entire mill considerably reduces engineering and training costs. In addition to the cost advantages of scale, one of the main benefits is the global availability of spare parts.

Safety

Safety is an essential aspect of a drive system. The safety concept meets the terms of European Union Machinery Directive 2006/42/EC. SIPAPER Drives APL and SIPAPER Winder APL offer a safety solution that complies with the newly published machinery safety requirements EN1034-1, 3, 16, 17, 21 for the safety automation system.

The safety concept covers emergency stop, prevention of unexpected start-up, start-up warning, maximum speed limit monitoring, crawl speed limit monitoring, and hold-to-run for crawl mode.

The solution is implemented in the proven fail-safe control unit S7-400H, which allows engineering-friendly configuration with F-systems in the same graphical interface as the standard program. The distributed IO racks can accommodate both standard and safety IO cards. PROFIsafe is applied for fail safe communication with the SINAMICS frequency converters. This offers high flexibility during the engineering phase and reduces the cabling costs.



Operations alternatives

Both SIPAPER Drives APL and SIPAPER Winder APL feature a high-level operator station based on PCS 7 WinCC. The implemented APL-based pop-up windows (faceplates) have been developed to meet the requirements of sectional drives and winder functions. The uniform representation of monitoring information and operating approach results in a minimum of operator training time.

The visualization from signal state information according to IEC61158 and the APL block jump function between our extended set of sectional drive-specific faceplates is only an example of the diagnostic possibilities offered.

- Machine overview
- Speed set point/
Tension set point cascade
- Profiles view for load, draw,
tension, temperature, and speed
- Detailed drive list
- Maintenance list
- Cabinet overview
- Emergency stop overview
- Status from distributed IO
- Trendings
- Archive systems for grade-related
parameters (SIPAPER Drives APL only)
- Web break lists with time stamps and
light gate overview in combination
with fast web break trendings for
improved diagnostics

Operator panels

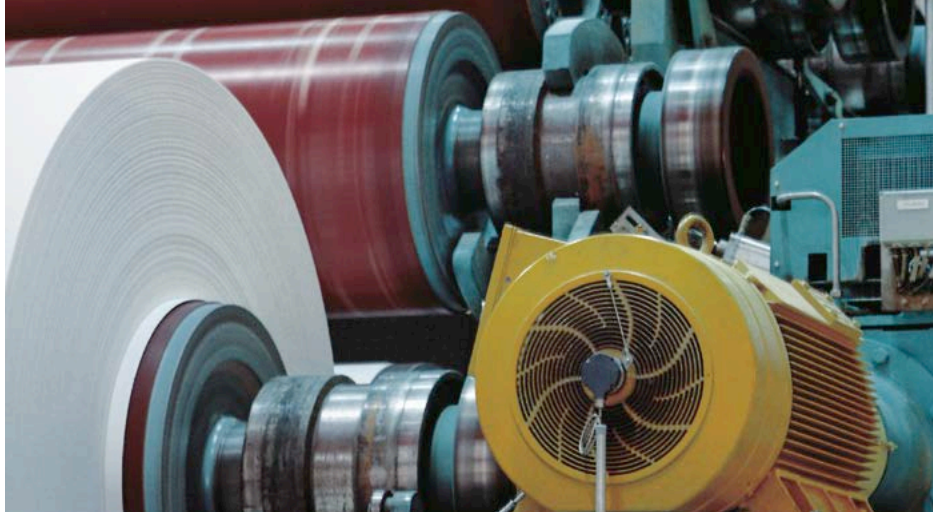
- Operator and diagnostic screens
- Industrial operator panels with options
for Comfort Touch panels (SIPAPER
Drives APL only), Comfort Key panels
(SIPAPER Drives & Winder APL), or
mobile panels (SIPAPER Drives APL
only)

Special winder function (SIPAPER Winder APL only)

- Diameter and length calculation
for unwinder and rewinder
- Brake control logic
- Positioning and target stop function
(length and diameter)
- Geometric data
- Integrated core-hardness management

Modernization and revamping

Thanks to their modular concept, SIPAPER Drives APL and SIPAPER Winder APL components can also be easily implemented in existing systems. For this purpose, digital converter technology is available for DC as well as for AC systems, with a large number of interfaces based on global industry standards. Their extremely compact design allows modernization even with little space in the switch room.



The benefits

Thanks to the high degree of scalability and expansion capability, the APL standard is ideal for new machines as well as for the modernization and conversion of existing plants. Furthermore, you can count on long-term security of your investment because of guaranteed PCS 7 compatibility and the use of APL-conforming blocks and faceplates and F-systems.

Service

As your global business partner, we see our role as more than just a supplier of products. We offer you a comprehensive range of services over the entire life cycle of your machine, providing you with support, answering all of your questions, and offering you complete solutions for modernizing and optimizing your entire plant.



Your advantages at a glance

- Powerful software platform used for paper, board, and coating machines (SIPAPER Drives APL), or for finishing machines and slitter winder and rewinder (SIPAPER Winder APL)
- The high degree of scalability makes the standard ideal for new machines as well as for the modernization and conversion of existing plants
- Long-term investment security guaranteed by PCS 7 compatibility and global support
- Standardized solution compatible with other SIPAPER APL family products and easy integration into existing APL projects
- Extended scope of technological functions specially developed for the P&P industry, with APL-conforming icons and pop-up windows (faceplates)
- Uniform, ergonomic, and intuitive APL-conforming human-machine interface for convenient control with low training costs
- Safety concept following EN1034-1, 3, 16, 17, 21
- Same graphical engineering environment for standard and safety program (CFC)
- Extended diagnostic and simulation possibilities
- Motors attached directly to the machine, suitable for use under drying hoods at ambient temperatures of up to 90 °C. Perfect solution for revamping of old machines with gears and gearboxes
- Maintenance-friendly, low-noise, space-saving converter and motor design
- Energy-efficient system design optimized for minimum system disturbance

Siemens AG
Industry Sector
Paper Technologies
Werner-von-Siemens-Str. 60
91052 Erlangen
Germany

E-mail: paper@siemens.com
www.siemens.com/paper

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