



# SIEMENS

*Ingenuity for life*

## 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under constant pressure, customers all over the world are demanding product quality that is impossible to achieve using outdated technology. At the same time, continuously rising prices for energy and raw materials increase cost pressure enormously while the competition grows more and more aggressive.

To meet these challenges, it is necessary to invest in the best technology available and thus make your plant as efficient as possible.

This requires efficient production processes with simplified operations, optimized diagnostic capabilities, and highest safety standard, combined with maximum energy efficiency and minimum maintenance costs – as well as continuously available, expert technical support to minimize downtimes.

Based on our many years of experience in the fiber 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 slitter winders and rewinders.





### The solution

SIPAPER Drives APL and SIPAPER Winder APL are the appropriate drive solutions for paper, board, tissue, coating, 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. The control system and human-machine interface maximize efficiency in operating and troubleshooting your machine.

### The solution at a glance

SIPAPER Drives APL and SIPAPER Winder APL are the next generation of our well known SIPAPER standard for drives, as proven by many success stories in the paper industry around the world. Based on the APL technology, Siemens offers a perfectly coordinated modular solution, tailored to the current and future needs of the paper industry. From the latest generation of high-end machines to the modernization of existing plants, SIPAPER Drives APL and SIPAPER Winder APL offer a customized 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 world's leading process automation system, which perfectly integrates the functionality of the drives to create a powerful system with maximum availability. The CPU ensures that the drives' rapid digital control and regulating tasks work smoothly. The human-machine interface is available as high-end or stand-alone architecture. Local operation takes place through user-friendly panels. A wide range of control and monitoring functions – including comprehensive error diagnostics – are available on the local operator panels.

The SINAMICS family of variable-speed drives maximizes dynamics and control accuracy for modern three-phase motors, e.g. for gearless direct drives from Siemens. The SINAMICS system platform covers all requirements from minimum to maximum power ratings, from low to medium voltage, and for AC or DC technology.



### Standardization

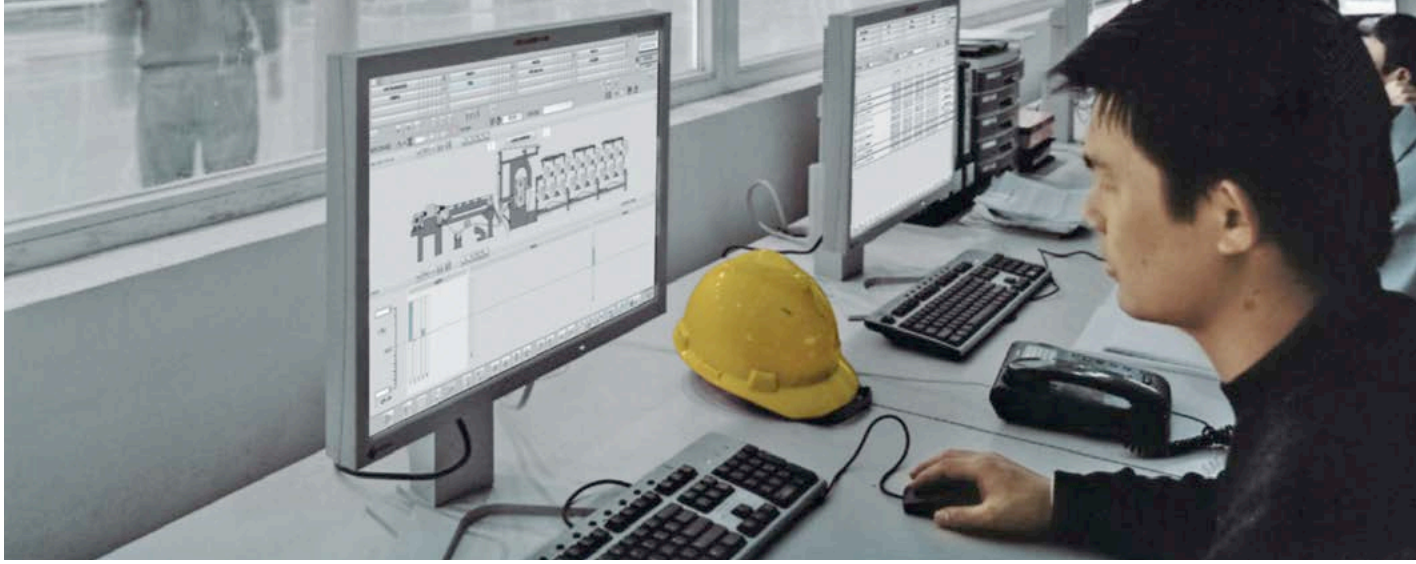
SIPAPER Drives APL and SIPAPER Winder APL are based on the modular and service-friendly PCS 7 software architecture. They are completely compatible with all our SIPAPER APL solutions. This provides clear advantages: Using one system in the entire mill considerably reduces engineering and operator training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

### Safety – SIPAPER Safety Integrated

Safety functions are an important part of a drive system. The SIPAPER Safety Integrated concept meets the requirements of the EU machine directive 2006/42/EC. SIPAPER Drives APL and SIPAPER Winder APL include SIPAPER Safety Integrated – a safety solution that meets all drive system requirements in compliance with the EN1034-1, 3, 6, 16, 17, 21 standard on safety systems for paper manufacturing machines.

SIPAPER Safety Integrated has an emergency stop function, protection against unexpected startups, a startup warning facility and safely limited speed (SLS) for maximum and creep speeds.

The SIPAPER Safety Integrated software runs on the tried-and-tested safety-capable CPU S7-410. The software system provides the same graphical user interface for the safety and standard programs, which significantly simplifies diagnosis. The local peripherals support both standard and safety inputs/outputs. PROFISAFE is used for fail-safe communication with the SINAMICS variable-speed drives and the local peripherals. This safety protocol increases flexibility and minimizes cabling costs.



### Operation alternatives

SIPAPER Drives APL and SIPAPER Winder APL support higher level control stations based on PCS 7 WinCC. The APL-based pop-up windows (faceplates) were developed specifically for operating multi-motor drives and slitter winders. The standardized visualization of operating information and the uniform operating concept minimize operator training.

In addition to the visualization of signal states in accordance with IEC61158, the APL's block jump functionality makes it possible to track the complete software structure from the operating system, thus maximizing diagnosis speed.

- Machine overview
- Speed setpoint/tension setpoint cascade
- Color profile view for load, traction, motor temperature, and speed
- Detailed list views
- Maintenance list
- Cabinet overview
- Emergency stop overview
- Status from distributed IO
- Trends (can be configured by the operator with drag & drop functionality)
- Archive system for grade-related setpoints
- Web break diagnosis with fast web break trends

### Operator panels

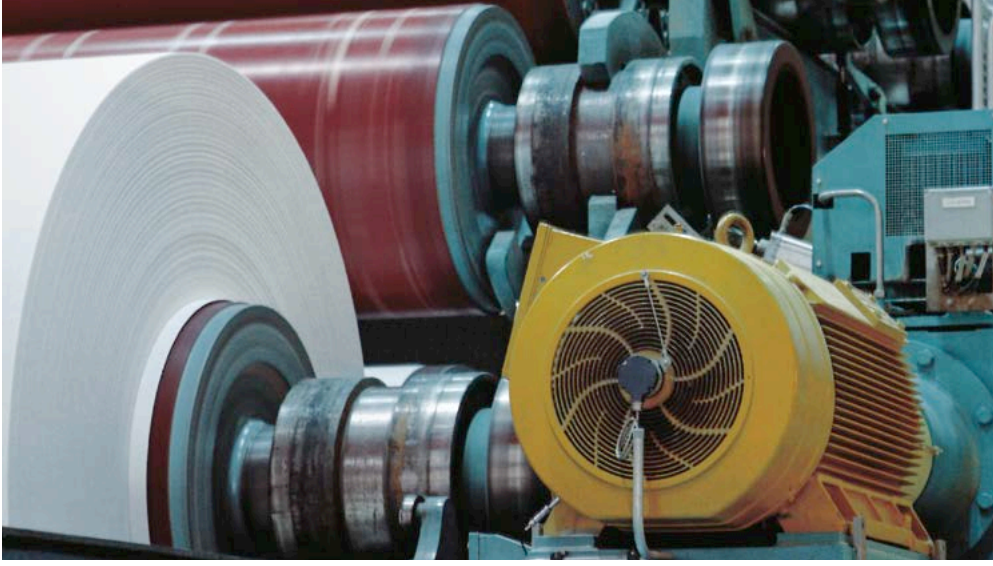
- Operator and diagnostic screens
- Industrial operator panels, such as touch panels or key panels

### Additional SIPAPER Winder APL functions

- Diameter and length calculation
- Brake control logic
- Positioning and target stop function
- Integrated winding hardness control

### Modernization and revamping

Thanks to their modular concept, SIPAPER Drives APL and SIPAPER Winder APL components can also be easily implemented in existing systems. Due to the large number of prepared interfaces, SIPAPER Drives APL and SIPAPER Winder APL support both the current family of SINAMICS converters and older variable-speed drives.



### The benefits

Thanks to the high degree of scalability and expansion capability, SIPAPER APL solutions are ideal for new machines as well as for modernizing and converting existing plants. Because the solutions are guaranteed to be compatible with PCS 7 and F systems, you can rely on the long-term security of your investment.

### Service

As your global business partner, we see our role as more than just a supplier of products. We offer a comprehensive range of services over the entire life cycle of your machine, providing you with service and support, answering all 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 winders and rewinders (SIPAPER Winder APL)
- SIPAPER Safety Integrated, for meeting all requirements of EN1034-1, 3, 6, 16, 17, 21
- Ideal for new machines and for modernizing and retrofitting existing machines with maximum scalability
- Long-term investment security guaranteed by PCS 7 compatibility and global support
- A standardized SIPAPER APL solution that is compatible with all PCS 7 APL products
- Increased scope of technical functions and faceplates developed specifically for the paper industry
- Uniform, ergonomic and intuitive APL human-machine interface for convenient control and minimal training costs
- Continuous function chart (CFC) for standard and safety programs
- Extended diagnostic and simulation possibilities
- Maintenance-friendly, low-noise, space-saving converter and motor design
- Energy-efficient system design optimized for minimum system disturbance

Siemens AG  
Fiber Industry  
Werner-von-Siemens-Straße 60  
91052 Erlangen  
Germany

E-mail: [sipaper@siemens.com](mailto:sipaper@siemens.com)  
[www.siemens.com/sipaper](http://www.siemens.com/sipaper)

Article no. VRFF-B10015-00-7600

Dispo 21619

TH 464-130715 | DB | 04141.

Printed in Germany

© Siemens AG 2017

Subject to changes and errors. The information provided in this document contains descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.