



## WebDrive®/Paper

The platform for energy-efficient drive technology in the paper industry



- Supervisory System
- Drive Control
- Drive Cabinets
- Technology Functions
- Motors
- Mechanical Transmission
- WebDrive®/Winder



# The sectional drive. The heart of a paper machine.

The sectional drive system and its control and automation equipment are extremely important in paper and board machines. Many paper technologists rightly call the sectional drive of these machines the heart of the machine.

With *WebDrive®/Paper*, Kühne + Vogel GmbH offers paper and board manufacturers an integrated universal portfolio of automation and drive technology.

### *WebDrive®/Paper* includes the following segments:

- Supervisory System
- Drive Cabinets
- Motors
- Drive Control
- Technology Functions
- Mechanical Transmission

*WebDrive®/Paper* is optimised for technological control and automation tasks of sectional drives. Maximum plant availability and maximum energy efficiency is achieved, especially by using direct-drive technology.

*WebDrive®/Paper* naturally also offers solutions for simple standard drives for stock preparation and in the constant section.

### *WebDrive®/Paper* guarantees the user:

- max. total efficiency of the drive train
- minimum Installation and commissioning time and
- maximum Availability
- Optimum value for money



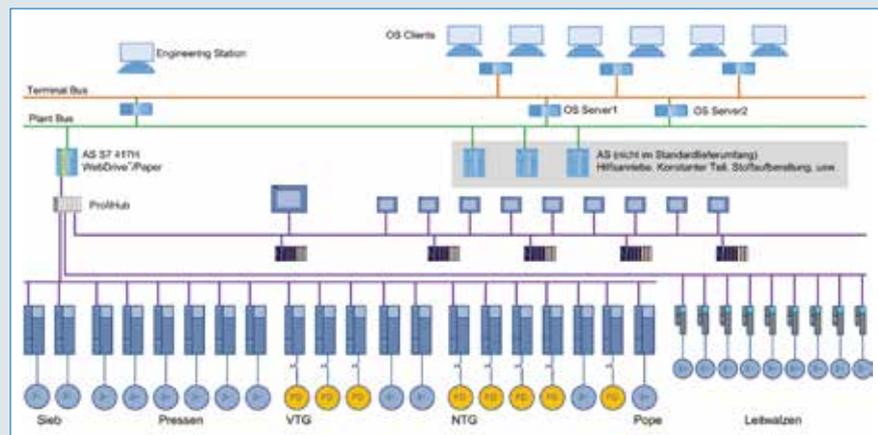
Paper machine with *WebDrive®/Paper* sectional drive from the operator's side



Paper machine with *WebDrive®/Paper* sectional drive from the drive side

ACTION	TYPE	PAPER GRADES	COMPONENTS	SERVICE
<ul style="list-style-type: none"> <li>• Newbuild</li> <li>• Rebuild</li> <li>• Sectional rebuild</li> <li>• Retrofit</li> </ul>	<ul style="list-style-type: none"> <li>• Paper machine</li> <li>• Board machine</li> <li>• Coater</li> <li>• Winder</li> <li>• Calender</li> <li>• Cross cutter</li> </ul>	<ul style="list-style-type: none"> <li>• Graphic paper</li> <li>• Packaging paper</li> <li>• Board</li> <li>• Tissue</li> <li>• Special paper</li> </ul>	<ul style="list-style-type: none"> <li>• Control system</li> <li>• Drive Control</li> <li>• Technology functions</li> <li>• Switchgear</li> <li>• Motors</li> <li>• Gear unit</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-engineering</li> <li>• Electrical design</li> <li>• Software engineering</li> <li>• Electrical installation</li> <li>• Startup</li> </ul>
<b>Machine</b>			<b><i>WebDrive®/Paper</i></b>	

All system components of *WebDrive®/Paper* are perfectly matched with each other and ensure the paper manufacturer maximum energy efficiency, availability and future-proof investment.



# The segments of *WebDrive®/Paper*

## ■ Supervisory System

The *WebDrive®/Paper* user interface supports papermakers and in-house maintenance personnel with extensive overviews, profiles, curve displays and alarm functions. The look-and-feel of the operating screens and faceplates are based on the Pulp-and-Paper standard widely used in the paper industry. In the standard scope of supply the Supervisory System segment is based on SIMATIC PCS7 as a client-server solution with an engineering station and a variable number of OS stations. For non-standard solutions

*WebDrive®/Paper* can be easily integrated into other control systems, e.g. ABB A800xA. The OS stations are supplemented by local operator station near the machine outside the control room. Although the local control points are also designed to the Pulp-and-Paper standard, they are always adapted to the individual wishes of the papermaker. Types such as touchpanels, keypanels or panel combinations with discrete technology are available in all kinds of different variants.



## ■ Drive Control

SIMATIC PCS7/S7-400 automation system and the SINAMICS drive family form the basis of the drive control segment of *WebDrive®/Paper*. The combination of these powerful platforms with the *WebDrive®/Paper* function block library provides the decisive performance gain compared to other drive systems. Time-critical functions are processed with optimised drive modules, dynamically in vector or servo functionality, directly in the control units of the converter.

This achieves maximum availability and optimum control properties for the whole paper machine drive. The Machinery Directive, especially the regulations for the design and construction of paper-making machines defined in EN 1034 are fulfilled in every respect by the use of safety functions integrated in the drive (safety integrated, EN 61800-5). Standardised acceptance routines ensure and document safety validation during startup



## ■ Drive Cabinets

*WebDrive®/Paper*-switchgear is designed by engineers in the Roth factory with extensive industry experience and are built and wired by qualified switchgear installers to the relevant national and international regulations. Before delivery, all systems are subjected to continuous quality and functional control. Larger systems are subjected to a thorough factory acceptance test (FAT) in conjunction with the supervisory system and the drive control functions.

This ensures the shortest possible startup times on the construction site. Depending on the size and type of paper machine drive, the following control cabinet types are used:

### **Cabinet:**

Space-optimised side-by-side system,  
3AC 380..480 V, 500..690 V

### **Chassis (standard):**

Modular rack system,  
3AC 380..480 V, 500..690 V

### **Booksize:**

Small outputs, e.g. for security paper machines,  
3AC 380..480 V



### ■ Technology Functions

The function blocks of the technology functions are part of the extensive *WebDrive®/Paper* library. They unite the results of more than 30 years' experience with sectional drives in the paper industry. *WebDrive®/Paper* therefore controls all drive tasks and operating states that occur in paper and board machines. Examples of technological function blocks:

- Control drive with / without droop
- Follower drive with / without droop
- Load distribution of frictional groups
- Load distribution of partially frictional groups
- Braking with dynamic adjustment for dryer groups
- FlexoDirect for dryer groups
- Direct / indirect tension control
- Flying splice
- Angular synchronism, etc.



### ■ Motore

Selection of suitable motor technology is of decisive importance for development of the optimum drive concept for a paper or board machine. For the engineers of Kühne + Vogel GmbH this selection is one of the most important considerations at the start of each rebuild or newbuild project. Important factors that influence the selection include, among other things, investment cost and life cycle costs, performance at the converter, efficiency at different load

points, type and space requirement, robustness and maintenance requirement, cooling type, etc. Using the advantages of modern torque drives, for a continuously increasing number of applications the decision regarding the choice of drive concept is made in favour of gearless or direct drive solutions.

With *WebDrive®/Paper* direct drives are implemented not only as asynchronous motors but also as synchronous motors.



### ■ Mechanical Transmission

Both the quality and the energy efficiency of the complete drive train are determined not only by the drive control and motor components, but also to a decisive extent by the mechanical components: the coupling, gear unit and driveshaft.

For this reason the mechanical transmission segment of *WebDrive®/Paper* is an essential part of the overall system. Above all, the choice and dimensioning of the gear unit is of decisive importance. In this sector we cooperate closely with AS Drives & Services GmbH.



### ■ WebDrive®/Winder

Winders set special requirements for the drive and automation technology compared to paper machines. For this reason, with *WebDrive®/Winder* a separate platform has been created for winders. *WebDrive®/Winder* contains all the segments of *WebDrive®/Paper*.

In addition, *WebDrive®/Winder* has specific functions such as roll hardness characteristic, roll history, diverse target stop programs, automatic blade positioning, etc. and therefore guarantees the papermaker optimum roll quality and maximum ease of use. In system retrofitting machine upgrades with mechanical engineering, pneumatics and hydraulics are also included in our supply portfolio.

