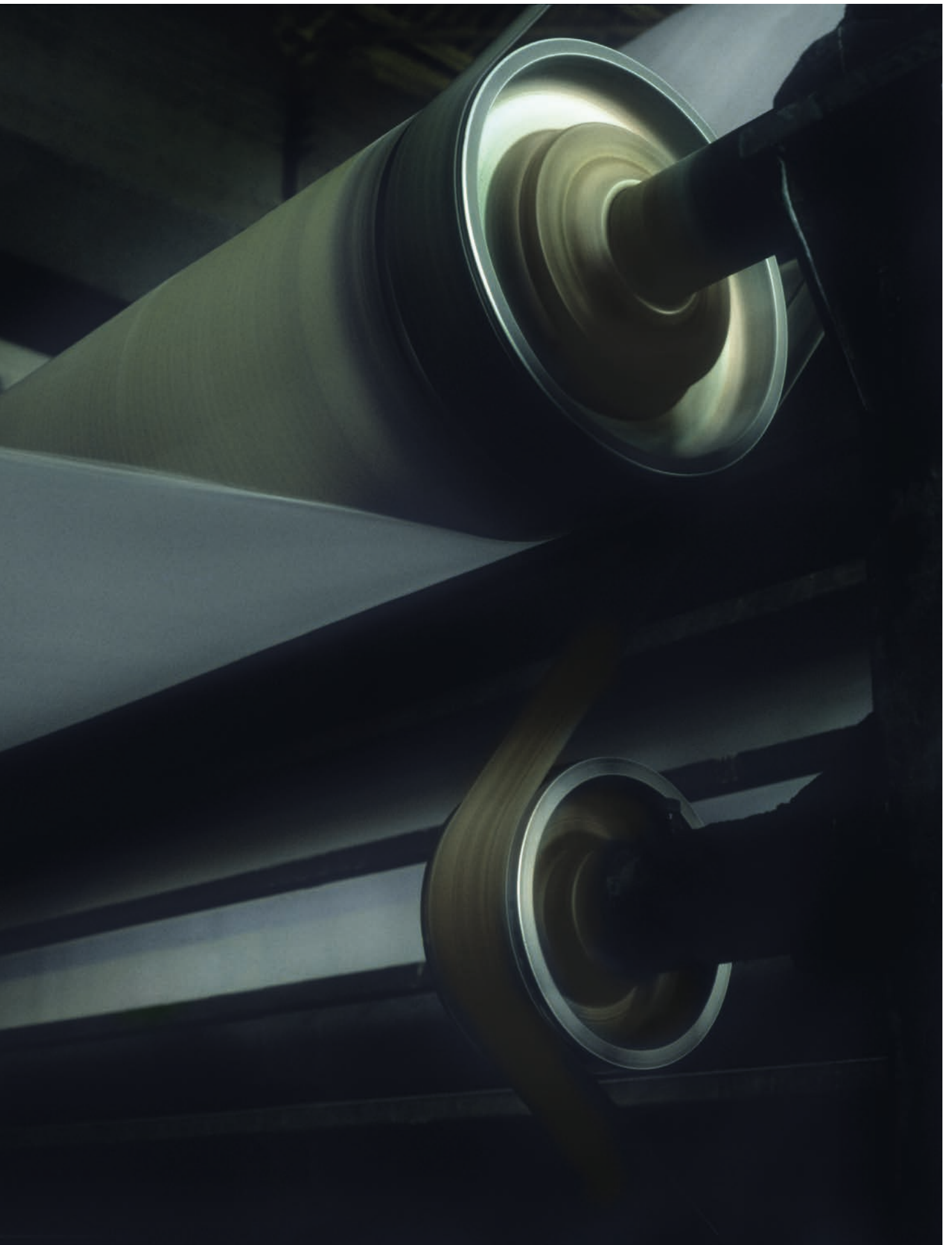


A large roll of paper is being processed by a blue industrial machine. The paper is light-colored and has a textured, fibrous appearance. The machine is blue and has various components, including a large circular part at the top and a horizontal beam with a sensor or encoder attached to it. The background is dark, and the overall scene is industrial.

LEINE  LINDE

ENCODERS AND SENSORS FOR
PULP & PAPER



Safety compliance made easier

Functional safety using encoder relay output

Implement functional safety compliant with the European Machinery Directive with encoder safety relays connected directly to the emergency stop loop or directly to selected braking functions.

FSI 800 series

FSI 850 and FSI 862 are safe incremental encoders for drives, with slip-free mounting solutions for both shafts and hollow shafts.

FSI 900 series

The FSI 900 series are encoders with integrated safety limit switches and user-configuration software. Connect the relays to emergency stop loops or brake activation.

EX certified solutions

In potentially explosive atmospheres, for example when chemicals and paints with sensitive substances are involved, use an ATEX, IECEx, CCC, EAC rated or UL listed encoder, available as both absolute and incremental encoders.

EX 600 series

Robust, absolute encoders that work well also when subjected to vibrations, moisture, salt water, dirt, heat and cold, or shock from strong mechanical forces. Available with hollow or solid shaft.

EX 800 series

Incremental encoders that use High-Current HTL (HCHTL) signals for long distance transmission. Model 841 is available with an optional diagnostic system (ADS Classic) and multiple EX certifications so that it can be used as a universal EX proof encoder.

Made for flexible system integration

The right connectivity for your system

Leine Linde encoders and gateways are available with a wide range of fieldbus interfaces and communication protocols, making them easy to integrate in your process control system.

Industrial 600 series

Absolute position encoders that communicate via the serial interfaces SSI and EnDat, or with advanced fieldbus interfaces such as PROFIBUS, PROFINET, EtherNet/IP or CANopen.

Premium 900 series

The 900 series platform manages complex position feedback. Available with different communication interfaces such as EnDat, SSI, PROFIBUS, PROFINET, EtherNet/IP and DRIVE-CLiQ.

Encoders for use with gateways

Use an encoder with a separate gateway to get a flexible installation, using your desired communication protocol, where the encoder can easily be exchanged without interrupting the bus. In addition, gateway encoders usually tolerate high temperatures better.

Gateways

Available gateways provide communication using for example CANopen, EtherNet/IP, PROFIBUS and PROFINET. All gateways are listed in our accessories list



Maximized uptime with precise control

with reliable encoders and sensors

Production uptime and precision are critical factors in the complex production processes of the pulp and paper industry. Leine Linde's encoders and sensors provide reliable feedback on position and speed throughout the papermaking process so that all drives and motors can work smoothly and with precise control.

Leine Linde encoders can be trusted to deliver precise data, month after month and year after year - even in demanding environments. We have an excellent track record in the pulp & paper industry. By using our products, you minimize the risk of costly and time-consuming downtime.

Contact your nearest Leine Linde office for further consultation on the best product choice for your specific machines and system.

When production failure is not an option

Secure your uptime with encoder diagnostics

Encoders with condition monitoring functionalities, enable predictive maintenance for problem-free operation. They can also provide relevant information about potential sources of failure, which otherwise would risk affecting the production unit as a whole.

ADS Uptime™

Encoders with built-in ADS Uptime™ will enable monitoring the most relevant data from rotary installations and motors.

- Get detailed data for status, frequency, time in motion, and more
- Vibration is measured in both radial and axial directions for unsurpassed control.

Using ADS Uptime you can set alarms for the values that are critical for your specific application and receive early warnings before any serious production line fault occurs. One single prevented production stop could pay back the cost of all the ADS encoders at the plant.

Wireless surveillance

Check the data from ADS Uptime™ encoders using a mobile app that communicates with the encoders via Bluetooth.

- Analyze graphs to compare deviations or changes that require your attention.
- Access reports that helps you prevent potential problems.
- All data is stored in the encoder and easily accessible on demand.

ADS Uptime™ for wireless service check-up is available for encoders in the 800 series.



Industrial 600 series

Absolute position encoders with fieldbus and serial interfaces for automated processes. Ex rated models are also available.

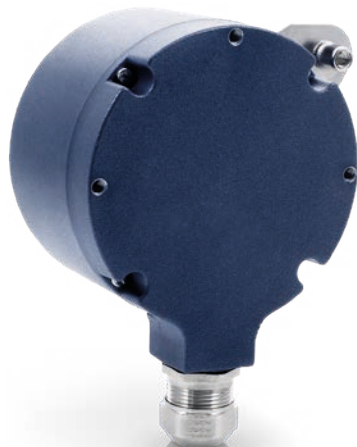
Robust 500 series

Versatility in a small encoder with large performance.



Compact 700 series

Enduring encoders in a compact format for minimum build length where space is limited.



Heavy-duty 800 series (Ex available)

Long-lasting maintenance-free incremental encoders. Made for demanding automation. Ex rated models are also available.

1. Pulping & wet end

The pulp-making operating conditions are wet, humid, and can vary a great deal in temperature. Robust and durable machine components are necessary, and when you need precision, the encoders from Leine Linde do their job perfectly. Get absolute position feedback for automated processes or control the opening of the pulp distributor by incremental encoders measuring speed and number of turns of the opening screw. Ensure a smooth conveyor and feeding system as well as equal quantities of pulp for uniform bales.

Suitable models:

- Industrial 600 series
- Robust 500 series
- Heavy-duty 800 series
- ADS Uptime 800 series
- Compact 700 series



2. Wet press section

Throughout the Fourdrinier process where excess water is eliminated, it is of utmost urgency to ensure the stability and smoothness in operation of the motors for perfect wire speed. Getting precise and high-resolution information from the encoders is essential for process control. Vibrations, heat, and chemicals are part of the process, which reliable encoders can withstand.

Suitable models:

- Industrial 600 series
- Robust 500 series
- Heavy-duty 800 series
- FSI 800 series
- ADS Uptime 800 series
- Compact 700 series

3. Dryer section

The conditions in the dryer section can be very hot and humid, both from the paper product and from the steam used to heat the drying cylinders. The speed of the rollers and cylinders must slow down progressively by each drying section, because the paper will shrink as it dries. Leine Linde encoders supply the feedback needed for precise control in the dryer section.

Suitable models:

- Magnetic 2000 series
- FSI 800 series
- Heavy-duty 800 series
- ADS Uptime 800 series
- Industrial 600 series

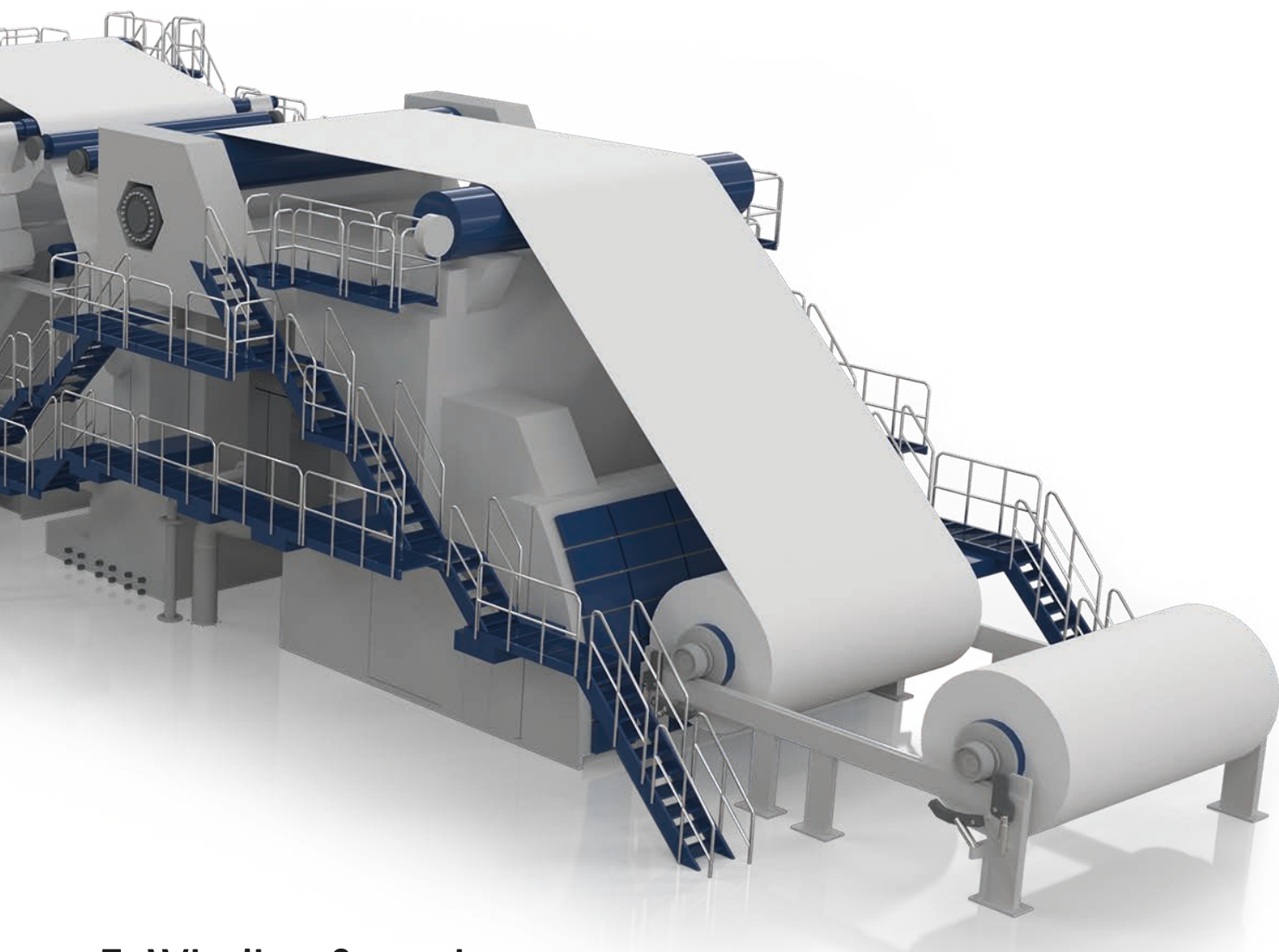
4. Finishing section

The paper passes through a calender where steel cylinders at a precisely determined width apart ensure that the paper thickness is consistently even. Coating is sometimes a part of the process in the finishing section.

In the finishing section the system has to handle heavy weight, shock, vibrations and strain in a dusty environment. The speed of rolls, drums and reels must be controlled in a very exact manner, in a demanding environment. This is where the industrial and heavy-duty Leine Linde encoders excel by providing precise and reliable feedback with a minimum of required maintenance.

Suitable models:

- Robust 500 series
- Heavy-duty 800 series
- ADS Uptime 800 series
- FSI 800 series
- Compact 700 series



5. Winding & cutting section

When the paper is formed, the sheet is wound onto a series of steel cores, which press against a pope reel. This make sure that the paper is wound at the right tension onto each core. Absolute position and speed monitoring is required when winding the paper onto finished rolls or onto jumbo reels. If a certain width is required, this can mean extra cutting and rewinding.

Suitable models:

- Robust 500 series
- Compact 700 series
- Heavy-duty 800 series
- Premium 900 series
- ADS Uptime 800 series

6. Sheet cutting or packaging

Encoders with built-in functional safety are especially useful in operations that involve moving or handling heavy paper rolls to sheet cutting or to the packaging station for wrapping.

Suitable models:

- Robust 500 series
- Heavy-duty 800 series
- FSI 800 series
- Industrial 600 series
- FSI 900 series



FSI 800 series

FSI 850 and FSI 862 are safe incremental encoders for drives, with slip-free mounting solutions for both shafts and hollow shafts.



ADS Uptime 800

Encoders with built-in ADS Uptime™ will enable monitoring of the most relevant data from rotary installations and motors.



Premium 900 series

The 900 series platform manages complex position feedback and can be equipped with a built-in functionally safe controller and functionally safe limit switches (FSI 900).



FSI 900 series


The FSI 900 series are encoders with integrated safety limit switches and user-configuration software. Connect the relays to emergency stop loops or brake activation



Bearingless 2000 series

Big hollow shaft incremental encoders, made for mounting directly on large rotating shafts. Can be equipped with one or two sensor heads.





The best encoders and sensors are those you never have to think about. Those that simply do their job – year after year. Leine Linde develops and manufactures customized encoder and sensor solutions for demanding environments, advanced measuring systems for accurate feedback of speed, position or strain.

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