LEINE LINDE

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

LEINE LINDE

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ROBUST ENCODERS

FOR ACCURATE SPEED AND POSITION

Welcome to Leine & Linde

Leine & Linde is a modern company with its roots in Swedish industrial tradition – greatly characterised by an inquisitive and quality-oriented engineering culture that is never satisfied with second best. Leine & Linde's products must be delivered on time without fail.

Exceptional requirements

Leine & Linde's specially-adapted position and speed encoders can be found all over the world. You will find them in machines and applications operating under the toughest of conditions. Extreme environments where vibrations, moisture, disturbances, heat and cold mean exceptional requirements in terms of material and design.

Each application involves a unique environment – whether it be a mining locomotive thousands of metres underground, a hot rolling mill or a turbine in a wind farm far out to sea – with specific requirements for encoders. Developmental work therefore takes place in close collaboration between designer and customer. The result is robust encoder solutions that you can rely on.

Rapid deliveries

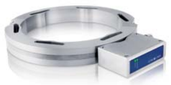
Efficient process management enables rapid and quality-assured product development and production. It normally takes us two weeks to manufacture an encoder. 24-hour express manufacturing is available for urgent orders. 96 per cent of all orders are delivered on the promised delivery date.

Global presence

Leine & Linde is a global company. Through its local presence Leine & Linde is able to support its customers with high availability and service no matter where they are.

Local sales offices all over the world also provide a structure for identifying technical trends and new requirements that arise for various customers. With 50 years of experience and efforts to constantly top up our knowledge, we have a good basis for delivering customised solutions to industries undergoing constant change.

Precision, confidence and flexibility – reliable encoders for all industries



2000 MAGNETIC

Suitable for large shaft diameters.

Certain motors require an encoder for speed feedback for the main shaft, where space is often limited.

The 2000 series is based on a concept comprising a rotating, magnetic ring with a separate, fixed pick-up unit that generates incremental pulses.

800 HEAVY DUTY

Robust incremental encoder adapted for challenging industrial environments.

Are you looking for a robust, maintenance-free and cost-effective encoder with a long service life? Then the 800 series is the right solution, and it's also the first choice of most designers!

The 800 series can be equipped with Leine & Linde's advanced diagnostics system, ADS, for condition-based maintenance.

500 ROBUST

Versatile and modular encoders.

These encoders conform to European industrial standards and are available in a hollow-shaft or shaft design, ensuring simple installation.

The 500 series is the right choice if you are looking for a standard encoder with unrivalled performance.

1000 EXTREME

Extreme in every way. An encoder to handle most things.

The 1000 series was produced to be used in the very toughest applications where mechanical stress, vibrations and high temperatures mean that other encoders are not suitable.

This encoder series is available with both an incremental and an absolute signal or as a combined variant.

700 COMPACT

Compact yet robust for applications with high mechanical stress.

With its short build length, it is designed to satisfy the need for heavy duty encoders even in installations where space is limited.

300 MINIATURE

Robust and extremely reliable miniature encoders.

These incremental encoders are only 30 millimetres in diameter and intended for installation in applications where space is restricted.

900 PREMIUM

Absolute encoder with high reliability requirement.

The 900 series offers increased resistance to environmental factors such as high temperatures, humidity, vibrations and shocks.

This encoder series is available with various communication interfaces and as a combined variant with an incremental output next to the absolute output.

600 INDUSTRIAL

Absolute position encoders that can position single or multiturn movements.

These position encoders are equally suitable for use in industrial automation or in demanding environments.

The 600 series is available with serial interfaces or with fieldbus interfaces such as PROFIBUS, PROFINET, EtherCAT, CANopen, DeviceNet or DRIVE-CLiQ.

ACCESSORIES

Just as important as the encoder itself.

Leine & Linde offers a wide range of shaft couplings, connectors, measuring wheels, mounting brackets and several types of gateways for adjusting encoder signals.

Our latest accessories include programmable speed monitors and new solutions for achieving reliability.

AUTOMATION

Advanced machines with complex movement patterns means even greater monitoring requirements. More information needs to be sent, still at the same speed, to gain full control over the processes and what is happening in the machine in real time.

There are a number of different communication interfaces available in Leine & Linde's product range for satisfying this need within industrial automation.

DRIVES

In a drive system, the encoder provides the link between the motor and frequency converter. Leine & Linde offers a wide range of encoders in various sizes and with varying robustness and functionality to suit the relevant application.

In demanding applications it is normal for the encoder signal to be supplemented with relay outputs that open in the event of overspeed. Leine & Linde's range of encoders therefore includes an integrated, programmable speed monitor where up to four relay outputs can be programmed to the desired levels.

CONDITION MONITORING

Temperature, operating speed and vibration are examples of factors that affect the encoder's service life and that are unique for each installation. Depending on the ambient environment, the service life can vary from a couple of years to a couple of decades.

Stoppages are very costly in large, complex systems such as wind turbines or paper making machines, which is why it is of the utmost importance to monitor the condition of incoming components. ADS Online offers an advanced diagnostics system that continually analyses the encoder's condition and status and warns of impending faults before they occur.

SAFETY

Leine & Linde's encoder is used in safety-critical applications, which is why either the $MTTF_d$- (EN ISO 13849) or PFH_d- (IEC 61508) value is offered to ensure that they satisfy the risk level reduction requirements. In most industrial applications in which the encoder is used, SIL2/PLd is sufficient for satisfying the safety requirement. It is however possible to achieve different levels of risk reduction depending on the encoder data and system architecture, from a minimum level of SIL1/PLc to a maximum level of SIL3/PLe.

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Paper

Reliability is a key factor within the paper industry. Production stoppages are very costly and must be avoided at all costs. It is extremely important to be able to regulate the speed of the rollers driving the paper forward with a high level of accuracy. Robust and accurate encoders play a central role in such systems. For maintained production, Leine & Linde also offers a diagnostics function which monitors the condition of the encoder. This may result in more efficient production thanks to the possibility of planning the replacement of encoders and thereby avoiding unplanned production stoppages.

Steel

Few activities demand more from their equipment. In rolling mills for steel production, encoders are used for example to control the speed of roll motors and to adjust roll heights. This is an extreme environment with dirt, vibrations, heat, big temperature fluctuations and mechanical forces at work.

Cranes

A crane in an outdoor environment is exposed to a lot of stress. Cold, heat, sun, rain and snow all cause wear to the components. Leine & Linde's absolute position encoders are used here to position the winch and wheels so that the load can be safely lifted to the right place. The motors powering the system must be able to rapidly adjust their speed to the current weight of the load, and incremental encoders are used for this.

Construction machines

Weather and wind cause wear to components in machines used outside. Apart from managing daily operations in a tough environment, the encoder must be able to send data to the machine's control system via the selected communications interface for a full overview of angles, positions and lengths. Leine & Linde's absolute encoder with the most common communications interface on the market is used for this purpose.

Mining

Regardless of whether mining takes place above ground or underground, operations involve a lot of stress on machine components, which in turn requires a lot of the encoders to ensure a problem-free production process. Leine & Linde's heavy duty encoders are frequently used in the mining industry as they can withstand tough environments with dust, vibrations and dirt. Both incremental and absolute encoders are used in mining operations and the encoders are also used for other applications in the mine, for example in lifts and conveyor belts to regulate speed.

Oil and gas

In the oil and gas industry the presence of explosive gases is common and because of this there are industry-wide regulations on how electrical equipment must be designed in order to reduce the risk of an explosion. Leine & Linde have encoders for both positioning and speed feedback which are certified in accordance with the regulations. The robustness of the encoders allows use at sea, where they can withstand the stress of the day-to-day operation of for example motors and winches.

Wind

Many wind turbines are located at sea, far from land and with no possibility of rapid service. This demands a great deal in terms of operational reliability of the systems. Leine & Linde's incremental encoders are used in wind turbines to control the rotation speed of the generator. Absolute encoders take care of positioning the tower and rotor blade at the best angle for the wind.