

A maximum of performance and transparency



Tailored to the special challenges of the mining industry, RINGSPANN implements modern system solutions for braking and emergency stop scenarios. They are used in belt conveyor systems, bucket wheel excavators and bucket elevators and can be designed for specific applications. The basis for this is provided by the manufacturer's one-stop shop, which, in addition to various drum and disc brakes, also includes regulation, control and monitoring systems. This offers numerous starting points for process optimization to designers and operators of installations.

The 24/7 availability of conveyor belts, wheel excavators and bucket elevators is a top priority in mining, bulk materials and earthmoving technology. After all, even the failure of a single component can paralyze the entire material flow and result in costly repair work," says Martin Ohler, who is jointly responsible for the Brakes Division at RINGSPANN. In order to protect both manufacturers and operators of heavy-duty mining systems from unpleasant surprises, he and his team regularly implement complete system solutions for braking and emergency stop applications on the basis of the company's one-stop shop. They are used worldwide and, depending on the situation, consist of drum or disc brakes, backstops and clutches, as well as units and modules for regulation, control and monitoring. In close partnership with the customer, RINGSPANN's engineering department ensures that all components are optimally matched to each other and that their interaction guarantees maximum performance and transparency. Martin Ohler explains what is primarily important here: "Firstly, it must always be ensured that the brake system is activated immediately when it is

necessary – and actually only then. Secondly, maintenance or repair cases must be recognizable in advance – i.e., before a breakdown."

Intelligent control of braking processes

With these guiding principles in mind, the experts at the brake and freewheel manufacturer RINGSPANN implement a large number of application-specific braking and emergency stop systems year after year, which prove themselves around the globe wherever valuable raw materials are extracted for the world market, under sometimes adverse conditions. The technological heart of these complete solutions is often the HCO-2R hydraulic power unit. For example, this offers the possibility of optimizing the positioning processes of extensive conveyor belt systems that work with several drive units by precisely regulating and controlling the brakes. In this case, the focus is only on the parameter braking time, which reduces the operating effort for the user to

a minimum. In addition, in an HCO-2R-based system, the braking processes of several conveyor belt segments can be synchronized with each other quickly and without programming effort. The length, incline, speed and load of the system are irrelevant here. "What used to be an uncertain time and cost factor can now be done with high precision in seconds," says Martin Ohler.

Integration of the RINGSPANN controlled braking system in the drive train is primarily based on the design specifications of the system manufacturer. The advantage of using it on the low-speed side of the drive is the high protection factor in the event of a gear breakage – the belt conveyor or bucket elevator can then be shut down quickly and safely.

When selecting the brakes, however, it must be taken into account that they are designed to be sufficiently strong. When used on the fast-rotating side, on the other hand, the brakes can be dimensioned much smaller, and the braking force is continuously adjusted during the braking process via a compact control system and a frequency converter. "However, the gearbox must then be designed in such a way that breakage is impossible," emphasizes Martin Ohler.

Minimize downtimes as a precaution

In addition to the hydraulic control system, the drum and disc brakes – and, if necessary, the backstops – the brake and emergency stop systems from RINGSPANN also include various monitoring modules for predictive maintenance. With these sensor-based monitoring units, all necessary maintenance intervals can be systematically planned and any overload and failure torques that may occur can be detected at an early stage. "In this way, we create the conditions for a plant operator's MRO team to be able to procure the required spare parts early enough and to reduce downtimes to a minimum in the event of repairs," explains Martin Ohler. Typical monitoring components of RINGSPANN's system solutions are, for example, sensors for constantly monitoring the wear level of the brake pads or operating status monitoring for our slow-running backstops.

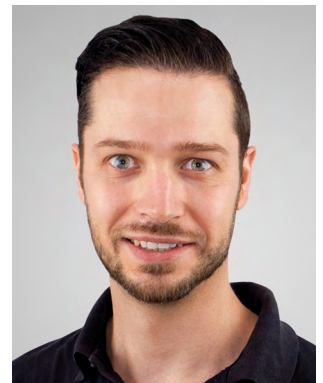


Radical simplification

With the HCO-2R from RINGSPANN, users can adjust the brakes of their conveyor system without programming knowledge so that they always react according to demand. All adjustments due to changed belt loads, fluctuating conveyor speeds, alternating load requirements, or even the change between longer and shorter holding times, are radically simplified by controlled braking according to the RINGSPANN design. This is reflected not only in the elimination of programming work on the part of the customer, but also in the fact that the infinitely variable brake control is always designed in such a way that manual operation on site is only carried out via a single rotary potentiometer. As standard, the operator of the conveyor system can regulate the braking time within 20 to 40 seconds with high accuracy. Extensive conveyor systems consisting of numerous belt segments with several independently operating drives and controlled braking systems, can be easily synchronized with the HCO-2R – regardless of different conveyor speeds of individual belt segments or different loads and gradients!

Brakes and locks for all occasions

Finally, there is also a wide range of drum and disc brakes that RINGSPANN offers for use in the drive trains of heavy-duty conveyor systems in mining, bulk materials and earthmoving technology. They are available in numerous different series and, with clamping forces of up to 560 kN, form as it were the executive branch of the complete braking solutions. As the world market leader in the field of freewheel technology, in addition to its industrial brakes RINGSPANN has access to a large portfolio of backstops of different designs for the realization of braking and emergency stop scenarios. "As a system supplier of modern brake systems we can always access numerous alternatives, thanks to the enormous range of our one-stop shop for components for industrial



Martin Ohler
RINGSPANN-
Business Developer Brakes

drive technology. This gives us a great deal of leeway in the implementation of customer-specific projects, simplifies the automation and re-engineering of obsolete systems and also makes us a reliable spare parts partner," says Martin Ohler. <<

