

Saving energy and reducing noise with RULMECA pulley



RULMECA Motorized Pulley 1000H installed in a bucketwheel excavator at MIBRAG open cast mine in Germany

The company MIBRAG (Mitteldeutsche Braunkohlengesellschaft mbH) is dedicated to the extraction and proportionate processing of lignite. The energy generation from lignite makes up for one quarter of the total electricity production in Germany. In its open-cast mines, MIBRAG produces more than 10% of the lignite extracted in Germany, supplying modern power and processing plants in the middle of Germany.

In 1999, the open-cast mine Schleenhain was brought on line again after a complete modernization. Schleenhain extracts about 11 mt (million tonnes) of lignite and 25–30 million cubic metres of overburden per year. The main lignite consumer is the power plant Lippendorf, generating the electricity necessary to serve five million households and providing district heating for the bulk of the city of Leipzig.

For years, MIBRAG and RULMECA have worked together. During that time, miles of overland conveyors have been equipped with thousands of RULMECA heavy-duty rollers.

Facing high energy and maintenance costs and new noise reduction requirements, MIBRAG decided to replace the existing 160kW exposed drive system on one of five bucketwheel excavators (conveying capacity of lignite or overburden 2500m³/h) with the new RULMECA Motorized Pulley 1000H. Noise measurements confirmed a noticeable decrease of 5dBa after the installation of the motorized pulley — leading to a reduction in the emitted sound pressure level by two thirds. On

top of that, the installation of a motorized pulley instead of the bulky tail drive constellation with external gear box, couplings and motor lead to a considerable saving in the space required at the conveyor head. Due to its lighter weight compared to exposed drive systems, the Motorized Pulley 1000H was very easy to install as it was not necessary to revise the conveyor structure. As all vital parts such as the gear box and the motor are protected within the motorized pulley shell, maintenance work is considerably reduced. Only one oil change is recommended after 50,000 hours in operation. Controlled by a variable frequency drive on 500V — three-phase — 50Hz power supply, the motorized pulley allows for easy adjustment according to the requested belt speed. Hence the Motorized Pulley 1000 H was the ideal choice for the bucketwheel excavator conveyors.

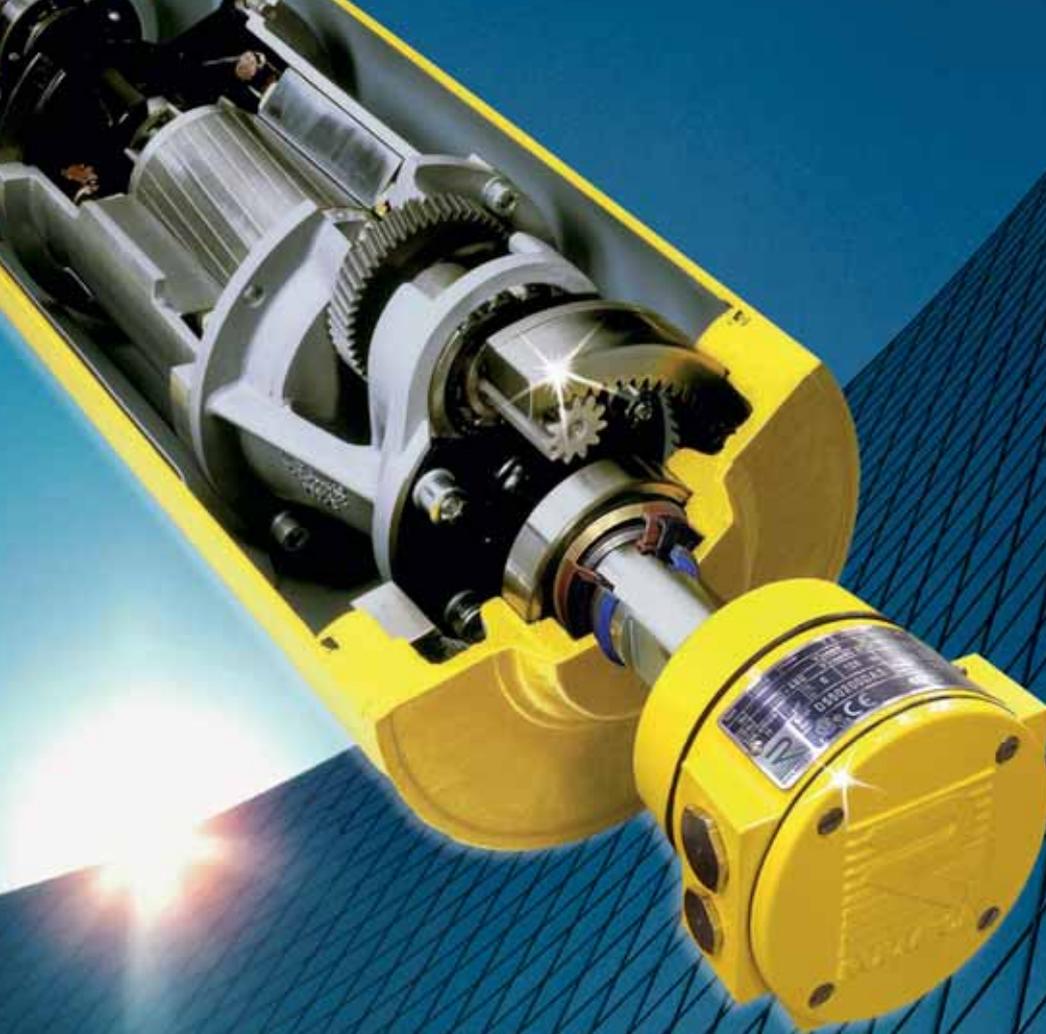
ABOUT RULMECA

The RULMECA GROUP is a privately owned international expert in research & development, manufacturing and sales of rollers, motorized pulleys and components for belt conveying systems in the global bulk handling market.

RULMECA Holding SpA, Italy, is the holding and mother company of the group, now comprising ten manufacturing units and 12 sales companies.

The company's core products are conveyor idlers and motorized pulleys. Additional products such as pulleys, scrapers and covers form the complete product range.

The key markets are typically mining, power stations, coal, steel plants, ports cement, recycling. Therefore, where loose



MAIN FEATURES

- Totally enclosed Drive
- Aesthetic design
- Space saving and light weight

BENEFITS

- Safer than exposed drives
- Smooth and out of sight
- No need for costly extras

We move your work

Rulmeqa Motorized Pulleys:

- the most efficient and effective drives available
- high protection rate of IP67
- low maintenance
- successful for more than 50 years

Contact your local RULMEQA Company to discuss about this or other requirements for Idlers and components for bulk handling applications.



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materials are being conveyed via belt conveyors, Rulmecca offers application solutions and products on a global basis.

RULMECCA works closely with engineering companies, OEMs and special machine manufacturers as well as directly with final end-users.

With an ongoing focus on market demands and customer requirements, the RULMECCA Group offers:

- ❖ a close partnership and consultancy with the customers for the correct selection of products;
- ❖ a range of products designed to last;
- ❖ own RULMECCA company or distribution in all major countries with a strong tradition in bulk handling activities;
- ❖ a high-quality product range within rollers and motorized pulleys distributed globally;
- ❖ a group-wide implemented quality system helps to ensure RULMECCA is meeting and exceeding customer expectations;
- ❖ a continuously expanding and evolving product range; and
- ❖ constant improvement in technical, design, and service.

Market demands for improved efficiency and higher throughput simply do not allow for maintenance stops or breakdowns. The selection of quality rollers and motorized pulleys is more vital than ever to ensure a long trouble-free life for the conveyors.

The result of RULMECCA's total quality philosophy is evident in the expansion of the group and its major worldwide presence and reputation. From research and development to the final product quality control, the RULMECCA Group's commitment to quality is always evident. RULMECCA's focus on quality has led to a group-wide policy oriented towards continual investment in



manufacturing and technology, in the quality of the materials used and in research and development.

This unwavering commitment has received a positive response from the market.

THE MOTORIZED PULLEY

The RULMECCA motorized pulley was first produced in 1953 especially for conveyor belt systems. The aim was to produce an extremely compact, totally enclosed and highly efficient belt conveyor drive, resistant to dust, water, oil, grease or harmful substances and a device which would be quick and simple to install and would require virtually no maintenance. These aims were achieved and today the RULMECCA motorized pulley is considered to be one of the most reliable and effective belt conveyor drives available throughout the world. The motorized pulley is a highly efficient geared motor drive, hermetically sealed within a steel shell. The shell which is usually crowned to ensure central belt tracking, is fitted with bearing housing incorporating precision bearings, double lipped seals and rotates about a static pair of shafts. The motor stator is fixed to the shafts and the

motor winding cables pass through one of the shafts, eliminating the need for slip rings and brushes. The squirrel cage induction motor, manufactured in steel laminate, is machined concentric to high tolerances and designed to 200% start up torque for 3-phase versions. The rotor pinion is coupled directly to the gear box which transmits torque to the shell through a geared rim and provides highly efficiency motor with very little friction losses. The motorized pulley is oil filled, which acts as both a lubricant and coolant. Heat is dissipated through the shell and the conveyor belt.



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Photographer: Rainer Weisflog*