

## High Performance Hoist and Travel Drives for Industrial Cranes

ABM Greiffenberger's program of electric travel and hoist drives offers a wide range to high performance drives to the manufacturer of single and double girder cranes, wire rope hoists and jib cranes. This program has now been extended even further. The range of hoist units now comprises the complete product family for loads from 3.2 to 25 to, the new range of travel drives, as introduced on the CeMAT 2005, including single speed travel drives within the Eco Line range, two-speed drives within the Profi Line and frequency controlled units within the Automation Line.



Lifting equipment has specifically high requirements concerning the electrical performance: The drive systems of industrial cranes need to be designed for enduring tasks in rough environment. On the one hand these drives need to operate with high turn around sequences, on the other hand they shall position precisely and smoothly – taking into account operator activities which may be described as

not really soft interactions, with many starts and reversing operations. All this guaranteeing highest levels of safety.

## 1) High Performance Drives for very demanding Operations

In most demanding applications and operations ABM's drives prove their high standards and performance. ABM Greiffenberger develops and manufactures drives for the lifting/crane industry for more than 30 years. 150,000 crane are operating worldwide with ABM drives.

ABM Greiffenberger's prime task is to satisfy the customer's requirements, and this is done most flexibly and is supported by the medium size of the company and by it's international activities. ABM's product and engineering philosophy focuses on mid-size crane manufacturers, who wish to position themselves in the high performance market segment by using highest standard drive technology.

## 2) New Range of Hoist Units



*ABM Hoist Drive GH 12500*

ABM's range of hoist units gains further attractivity, as the company presents a significant extension of it's product range on CeMAT 2005. Previously ABM offered only four GH hoist unit specifications for loads from 3.2 to 25 t operating within FEM 1Am. Now ABM covers the load range with a better

choice of lifting speeds and a higher classification, which is exceeded to FEM 2m. The two new hoist units GH 12500 and GH 20000 complement the range up to 25 t (FEM 2m, 4 falls) with common lifting speeds of 4, 5, 6.3 and 8 m/min. Thus a comprehensive range of hoist

units offers the advantage of one drive concept for a rather wide range of loads.

### **3) Compact Design with high Power**

The hoist units are equipped with a 12/2 pole asynchronous cylinder rotor motor. For inverter controlled hoist units ABM offer 2 and 4 pole hoist motors with resolver feedback. These operate with hardly any vibration and very silent. The motor transmits the force through a 3 stage helical gearbox, which is directly mounted to the rope drum, to the wire rope. The high performance helical gears result in high efficiency and low noise operation. The life time lubrication reduces the maintenance necessities to a minimum. A dual surface safety brake is integrated into the drive. In the event of a power cut the brake closes automatically. The brake is designed for a long life. An indication of the actual wear status can be read; a service may be required after approximately 1 m switches.

### **4) FEM Classification of Hoist Units**

The direct mounting of hoist units to the rope drum allows a U-shaped design of the hoists and a compact assembly. Thus the drives can be utilised in many ways – even if the crane has to operate within space limitations. The hoist units are designed thoughtfully down to the very detail, offering a variety of options and result in cost savings in the manufacture and assembly. The modular principle allows a customer tailored adaptation at very competitive prices. The new hoist units were designed most compact in order to realise FEM 2m with an increased life time – all “Made in Germany”. The expertise of 30 years of development and manufacture of crane drives is collated here.



*ABM Hoist Motor*

ABM offers hoist motors only, i.e. without gearbox and brake. ABM hoist motors offer many advantages:

The starting current is low, the dynamic speeding-up curve realises high crane power.

The soft and safe acceleration of the motor and the smooth operation characteristic are important features to realise high throughput and a precise, safe handling of the load.

## **5) The System out of one Hand: a wide Range of Travel Drives**

The comprehensive hoist unit concept forms only a part of ABM Greiffenberger's product and system philosophy. The company offers the travel drives as well. Thus the crane manufacturer can realise all his crane drives from a single source. Accordingly ABM offers a wide range of travel drives, defining a preferred range of wheel diameters from 125 to 400 mm with travel speeds of 5, 10, 20 and 40 m/min. The travel drive is available as helical (G range) or hollow shaft helical (FGA range) geared unit. ABM Greiffenberger supplies integral systems and solutions with single or dual surface brakes.



*ABM Travel Drive G-Range*



*ABM Travel Drive FGA-Range*

Some details show how the drives are adopted to the requirements of the crane operation. The gear section realises a low circumferential backlash – this keeps the load in an exact position. A special motor winding and the use of special rotors with fly wheels realises a soft start of the motors – thus avoiding the swinging of the load.

## **6) Three Product Lines for most versatile Requirements**

The requirements for speed and precision are quite different within the crane industry. The drive manufacturer needs to respond to the question, which way he is going to go: Does he offer cheap and simple drives and skips demanding applications or does he position himself in the high end market segment. Here the consequence is not to be able to offer competitive drives for straight forward simple applications.

ABM Greiffenberger decided in favour of the customer friendly and application driven solution: The travel drives are offered in three different product versions. The ECO LINE supplies one travel speed and applies to crane application for instance for transport of long materials or the handling and storing of steel products. The PROFI LINE operates with two travel speeds – typical examples in terms of applications are the swingless transport of sheet metal or coils and the

handling of containers, boxes and tools in assembly shops. In any application which requires highest precision and positioning accuracy the AUTOMATION LINE is the best choice. It offers variable speed and is used in the glass industry, for handling of big paper rolls or for placing of casting or other tools. Applications in areas with high productivity realise the advantages of the AUTOMATION LINE. The drive offers a very dynamic characteristic, which can be programmed individually by setting for instance the acceleration and deceleration ramps.

Regardless, which of the three product lines is chosen, the user gains a high performance, robust and durable travel drive, which allows the operation in a rough environment at minimal maintenance requirements. The producer of cranes is in the position to offer any of the before described product lines. The products are interchangeable and compatible. If the need arises, an upgrade is straight forward.

## **7) Summary: Partner of the crane manufacturer**

The new products will secure ABM Greiffenberger's position in the industry as partner of the crane manufacturer. This does not only apply to the hardware of the products, but also includes the engineering and the development in close co-operation with the customer. These strengths shall be enforced; the expertise in all these categories will guarantee that the customer receives a highly efficient, powerful, long life and innovative drive solution, which grants him the advantage of spearheading in technology and gives him the competitive edge in the market place.

Marktredwitz, 11.10.2005 Division „Lifting / Textile / Conveying “

ABM Greiffenberger Antriebstechnik GmbH