SIMINE Dragline
Innovative solutions for maximum productivity and reliability
usa.siemens.com/mining

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Subject to change without prior notice 02/14
Article No.: E20001-A450-T195-x-7600
DSQO 21662
GB140154 DR VM.1D.14.XXM/52.08
WS 02140.5
Printed in Germany
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Lowest cost per ton of material moved

Our solution:
Siemens has been in the mining business for over 100 years, delivering cutting-edge technology to meet our customers’ requirements. Siemens’ powerful AC drives are the most efficient available, requiring the least maintenance and boasting the shortest Mean-Time-To-Repair (MTTR) than any other drive on the market. In other words, the machine spends more operating time in the bank, which results in the lowest cost per ton available.

Siemens’ innovations, such as the gearless dragline drive, reduce operating costs even more, eliminating the need for gear maintenance and lubrication systems. Innovation, efficiency, productivity, and reliability are key elements in our extensive mining portfolio. Siemens is proud to be your partner in mining, where your requirements are met with our technology.

Our solution fits new Draglines and Dragline retrofits. The system uses modular electrics and “drop in” AC motors and can easily be adopted for small, mid-size and large machines.

Good reasons for SIMINE Dragline
- Higher productivity
- Higher drive system efficiency
- Less maintenance
- Lower life-cycle operating costs
- IDS – Integrated Drive System

Higher productivity
Our faster bucket filling times, higher hoisting and lowering speeds, and faster payout reduce machine cycle time and increase productivity. Analyses of several existing dragline operations have identified significant increases in productivity of up to 20% and more.

Higher drive system efficiency
Implementation of the static AFE increases system efficiency by approximately 15% and lowers energy costs by the same amount, in comparison with rotating M-G sets. Furthermore, gearless draglines increase efficiency and reduce energy costs by up to 20%.

Less maintenance
Our AC solution, with static AFE and brushless AC motors, eliminates the costs associated with the maintenance of M-G sets and DC motors. Gearless draglines further improve profitability by eliminating the maintenance costs of mechanical gears and associated lubrication systems.

Lower life-cycle operating costs
Lower energy costs and significantly reduced maintenance overhead – together with longer uptime and increased productivity – all translate into lower life-cycle operating costs over the life cycle of the machine, and the lowest cost per ton of material moved of any excavator in existence.
results in a very low Total Harmonic Distortion (THD) – high pulse rate of the AFEs, as registered by the network, fluctuations in the mine’s distribution system. In addition, the existing equipment at the Point of Common Coupling (PCC). This feature can be used to minimize voltage fluctuations.

Active Front End (AFE). The AFEs convert the AC voltage to a steady 1,800 V for the DC link. The inverters then convert this to the DC side. During operation, the inverters (INV) take power from the secondary voltage and then fed through a reactor to the DC link. The common DC link enables the exchange of energy between motoring and regenerating drives.

Heavy-duty current design

The synchronous ring motor has only very fast feedback regarding the position of the motor. In contrast, vector induction motor has in each speed feedback. The systems’ vector control system (VCS), allows internal per- mission to access the internal device and AVM for improved diagnostics and monitoring.

Comparison – Gearless

For the past eight years, we have been improving our drive and motor capabilities, by using a powerful software solution that:

- remotely monitors motor performance (MIDAS)
- monitors real-time performance (MIDAS)
- monitors historical log files for troubleshooting
- remotely troubleshoot machines (SIRAS)
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- remotely troubleshoot machines (SIRAS)
- monitors real-time performance (MIDAS)

The fast diagnosis greatly streamlines the repair process. It provides access to the drive control system itself. This makes not only enables access to diagnostic tools, but it also provides access to qualified factory experts can remotely connect to machines all across the world and access all of the troubleshooting tools available on board the machine. SIRAS gives access to the drive control system itself. This makes not only enables access to diagnostic tools, but it also provides access to qualified factory experts can remotely connect to machines all across the world and access all of the troubleshooting tools available on board the machine. SIRAS provides access to the drive control system itself. This makes not only enables access to diagnostic tools, but it also provides access to qualified factory experts can remotely connect to machines all across the world and access all of the troubleshooting tools available on board the machine. 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IDS – Integrated Drive Systems

The mining industry needs mobile equipment that performs better and faster, with greater reliability, to meet increased production demands. A new addition to the mining truck portfolio is the “Integrated Drive Systems”. Siemens Integrated Drive Systems further improves the truck performance through precisely integrated motors, traction drives, control systems and gearboxes. Having one trusted partner delivers a complete drive system that simplifies the design and procurement processes, reducing the required production time and total cost. Augmented by a comprehensive suite of performance monitoring software and services, Siemens Integrated Drive Systems deliver greater mine yields at a lower total cost.

As an Original Equipment Manufacturer for the mining industry, you strive for shorter time-to-market and shorter time-to-profit. As a mine operator, you expect components to interoperate in a reliable way at low maintenance cost.

Siemens fulfills all of your expectations – with Integrated Drive Systems (IDS), world’s first true one-stop solution for entire drive trains. IDS stands for perfect interaction of all components, reduced engineering effort, high CAPEX security, and reduced maintenance cost.

With Integrated Drive Systems, there is simply more to a drive component or system – more productivity, more reliability, more efficiency.

Horizontal integration
All frequency converters, motors, couplings, and gear units available from a single source. Perfectly integrated, perfectly interacting, for all power and performance classes.

Vertical integration
Integrated automation from the field level up to the controller level via the Totally Integrated Automation (TIA) solution to the application.

Lifecycle integration
Integrated software and services throughout the entire lifecycle. For better performance and maximum investment protection.

Integrated Drive Systems means perfectly matching components
Integration beats interfacing
A drive can do a lot more than just provide the required speed and torque at the driven machine – independent of its load or loading – and for every operating mode. Drives can do a lot more, for instance:

- reduce the operating costs as a result of their high efficiency and low energy consumption
- facilitate longer operating times as a result of the high availability and reliability
- ensure perfect interaction between all of the components, e.g. when starting and stopping in all operating situations
- facilitate optimum performance by adapting speed and torque to the requirements of the driven machine
- minimize stress on the driven machine by avoiding load peaks and oscillations
- integrate automation tasks, e.g. load equalization and slip control for multi-motor drives
- improve work conditions through low noise levels

Harmony delivers better results
A drive solution always creates several components. Siemens’ portfolio has all of these components in different versions, types and sizes. These components either conform to or define state-of-the-art technology. All of these components can be flexibly combined to create drive solutions that address the specific drive application. The portfolio extends from individual drive components – through a complete drive train – up to complex drive solutions with the power supply and control.

Main benefits:
- More productivity – thanks to smooth interoperability of all components, optimal performance, and higher throughput
- More reliability – due to improved operating times, a future-proof system environment, and our global support for the system solution
- More efficiency – based on optimal use of all capabilities, easiest maintenance, and reduced OPEX

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