

Completely Integrated Solutions
for the Mining Industry

SIMINE^{CIS} TR

More performance and productivity
with AC Drives for Off-Highway
Haul Trucks

Your Success is Our Goal

SIEMENS

Industrial Solutions and Services

With SIMINE^{CIS} TR, Siemens offers the most powerful electric truck drive available on the market. Our combination of high torque, high power, and ease of operation in an AC drive system translates into increased payloads, shorter cycle times, and higher system reliability. Proven converter technology and innovative remote monitoring and management tools minimize life cycle ownership costs.

The challenge

In today's highly competitive global market, operators of open pit mines can only afford to choose the best haul trucks, generally the most powerful and best performing trucks with a proven track record of low maintenance and high reliability.

These features depend heavily on the truck's drive system – electrical or mechanical – as the primary component in a critical value-added chain. Siemens' experience and track record in AC drive technology for off-highway vehicles set the standard in power and performance in mines worldwide.

Siemens drives are characterized by continuous, reliable operation in all extremes of altitude, temperature, weather, shock and vibration.

Our solution

To achieve maximum performance, the SIMINE^{CIS} TR AC truck drive system efficiently channels all the available engine horsepower to the ground. With higher engine power utilization than mechanical drives can offer, SIMINE^{CIS} TR delivers high rimpull at stall to move away from the shovel, high speed on grade going up the ramp, and high top speed running on the flat. With up to 6,000 HP of onboard retard capability, the truck can tackle downgrades with confidence, and at higher speeds than DC trucks, with smooth, effortless electric braking right to standstill.

Five good reasons for SIMINE^{CIS} TR

- AC technology provides maximum rimpull capability, drive power, and system reliability
- Sophisticated cooling technologies provide very high power levels in a compact package
- State-of-the-art control techniques maximize operator safety and system performance
- SIRAS remote diagnosis and MIDAS system analysis and management tools increase owner value
- Trolley assist capability increases the drive system productivity and reduces operating costs far beyond diesel/mechanical limits



Higher performance

AC technology yields 6–7% higher efficiency than DC drives at higher power levels and provides significant improvements in control functions. Automatic brake blending, for example, delivers seamless, single-pedal retard and stopping while slip/slide control maximizes traction. An automatic retard function keeps the truck within mine speed limits at all times. Anti-rollback provides one pedal-control on hills, and cruise control functions in both propel and retard operating modes. Finally, a differential torque control enhances turning and reduces tire wear.

Less maintenance, lower operating costs

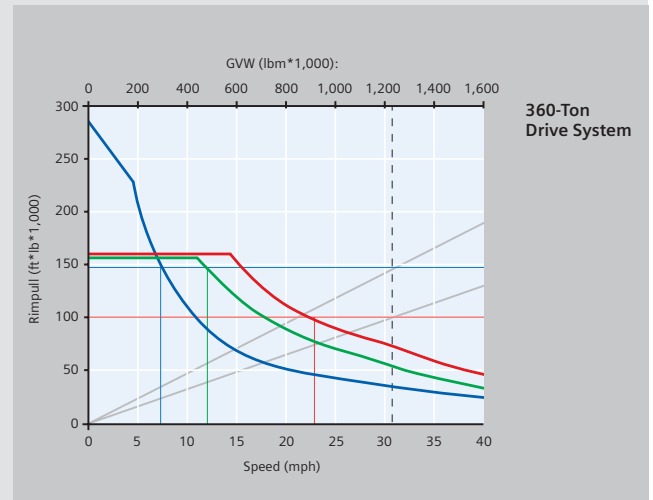
AC technology means no power contactors or wear-able components. Except for periodic bearing lubrication, the system is inherently maintenance-free. Power retarding down to standstill all but eliminates wear on the mechanical service brakes.

More reliability and remote access

SIRAS remote diagnostics hardware and software use internet technology to “keep the factory on the machine”. This means Siemens service technicians and other experts can log on to the truck from around the world for monitoring, troubleshooting and maintenance. In addition, operators and management can track trends and plan maintenance before failures occur. This adds value across the board in addition to reducing MTTR (Mean Time To Repair).

Greater productivity with trolley assist

SIMINE^{CIS} TR can be used with trolley assist to overcome the limitations of engine power and increase on



grade speed. By tapping into overhead electric lines the drive system can boost speed by up to 80% even while the engine idles. Offering significant advantages over DC trolley assist systems, trucks with Siemens AC trolley assist can handle a wide range of line voltages and run on the line at any speed and payload.

With up to 5,200 HP, trolley assist means higher speeds, shorter cycle times, reduced fuel consumption, less engine noise and wear, smaller fleets, and a better return on your investment. Siemens can supply all trolley equipment on the truck as well as wayside equipment such as pantographs, overhead lines, substations, line position sensors, maintenance, and support.

Stay ahead with top-notch service

Siemens service organization supports customers in maintaining peak machine performance throughout the entire life cycle. To this end, we provide professional service from the design stage through installation, commissioning, and in-field optimization.

SIMINE^{CIS} TR includes advanced diagnostic tools that can be used for predictive maintenance and trend analysis. And for complete peace of mind we offer remote monitoring and customized Maintenance And Repair Contracts (MARC) with parts and labor options.

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CIS = Completely Integrated Solutions

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

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SIMINE^{CIS} – Completely Integrated Solutions for the Mining Industry

As a comprehensive industry-specific solution for the mining industry, our SIMINE^{CIS} product family integrates all the products and services you need for sustained maximization of your plant's performance.

For each particular task, a solution has been defined that

- **horizontally** improves all production processes – from excavation to beneficiation
- **vertically** integrates the company's information flow end-to-end, helping corporate management to make better-founded decisions
- and **chronologically** enables optimized maintenance and comes with assured further development over the whole life cycle of your plant.

Due to this unique combination of horizontal, vertical and life cycle dimensions, our solutions all carry the genes of an exhaustive and sustained plant productivity in their very core.

For more productivity. More performance. More power. Completely Integrated Solutions from Siemens.