



Application Note *for* Improvement of Motor Performance in Quarries and Mining

Start & Save
with the
Right Voltage

Shapir Quarry
Reduced Voltage
Maintenance costs
by 60%

25% Savings in
Active Power (kWh)
of Bucket Elevator at
Mining Company

Independent study of
Sifter Equipment in
Quarry proved 62%
Reduced Line Losses
and
10% savings in Active
Power (kWh)

Loads

Bucket elevators,
hammer mills, sifters,
vibrators, conveyors,
crushers



The Right Voltage Solution

Ninety percent of electricity in mines and quarries is consumed by electric motors. The multi-functional SinuMEC controller improves all around motor performance and turns wasted energy into savings and profits. For electric motors on conveyors, crushers, bucket elevators and other machines that consistently operate at variable or partial load, the SinuMEC utilizes patented sinusoidal voltage control technology to adjust the voltage level according to the load, thus reducing wasted energy. The reduction of current by 30-50% results in a decrease of conduction losses of up to 75% for the kilometers of electrical cables running through mines and quarries. For starting motors, the SinuMEC provides reduced, sinusoidal voltage with low starting current and maximum torque. Simple installation enables fast deployment throughout the site and immediate improvement in efficiency.

SinuMEC	7.5KW – 150KW
Input Voltage	400V/480V
Efficiency	99.5%
THD	<1%
Bypass Contactor	Built-in
Startup current	Two times the nominal (typ.)

Benefits

Improves energy efficiency – adjusts voltage to the motor according to the load

No change to processes as motor speed remains constant

Simple installation - no programming or set up required

Reduced LCC (Life Cycle Cost) and downtime by up to 50%

Multi-Functional Controller

Sinusoidal voltage control for maximum efficiency of motors with variable loads

Reduced active power consumption

Reduced conduction line losses by up to 75%

Motor protection against faulty network conditions and equipment malfunctions

Harmonics free and harmonic filtration reducing heat, losses and equipment failures

Improved motor start-up using pure sinusoidal voltage instead of soft-starters, protects the motor and saves costs on replacement parts

Power factor correction (cos ϕ) for up to 60% improvement in operations

Increased life expectancy by reducing voltage, mechanical and temperature stresses