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OPTIMIZING MINING EFFICIENCY

POWER ELECTRONICS EXPERTISE

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Soft Starters Motor Control Motor Protection

ISO 14001 | 45001 | 9001 | CE | UL

MINING INDUSTRY CHALLENGES

Harsh Environments

Dust ingress, moisture, and constant vibration accelerate equipment wear. It is essential that motors and also control systems are suitably sealed and properly rated so as to ensure long-term, stable operation under continuous exposure to these conditions.

System Reliability

Mining processes run continuously, making reliability critical. Control equipment must consistently perform under variable loads, supply instability, and thermal stress, with dependable protection as standard.

Operational Costs

Energy use, maintenance, and downtime drive total cost of ownership. These factors depend on how effectively motors are started, controlled, and protected, requiring efficient and intelligent motor management.

Smart Solutions

Modern mining depends on advanced control. Real-time monitoring and predictive diagnostics enable early intervention and prevent unexpected shutdowns.

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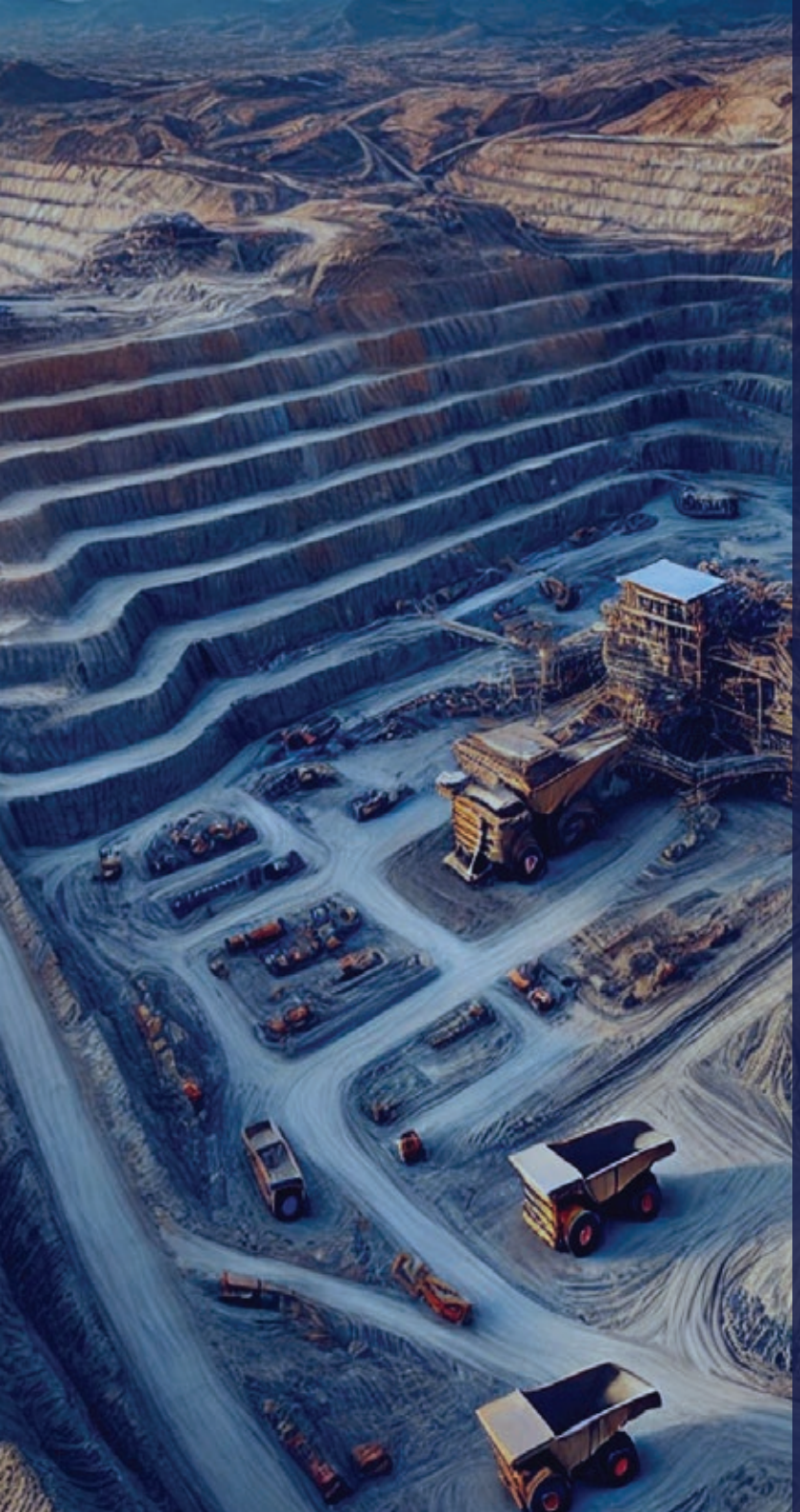

Challenge	Solution Approach
Harsh environmental conditions	Sealed, heavy-duty motor control systems designed for dust, moisture, and vibration
Continuous operation with high downtime cost	High-reliability designs with built-in protection and stable performance
High inrush current during motor start	Soft starting with controlled current limiting
Mechanical stress on equipment	Controlled torque ramp-up to reduce shock and wear
High-inertia load starting (mills, crushers)	Adaptive acceleration profiles with torque control
Energy consumption and peak demand	Optimized starting reduces electrical demand peaks
Limited system visibility	Integrated monitoring and real-time diagnostics
Unplanned failures and maintenance	Predictive diagnostics and early fault detection
Disconnected control systems	Full integration with SCADA / DCS platforms

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MOTOR CONTROL

Precise motor control ensures stable operation under dynamic loads and continuous processes.

Process Stability

Controlled torque at start-up
Reduced shock and material spillage
Prevents cumulative mechanical stress

Load Management

High-inertia load handling
Extended acceleration, torque control
No oversizing of equipment

System Integration

SCADA / DCS compatibility
Communication protocols and I/O
Centralized monitoring and control

Monitoring & Diagnostics

Real-time operational data
Predictive maintenance capability
Reduced downtime and extended life

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SOFT STARTERS IN MINING APPLICATIONS

Controlled start and stop performance with reduced electrical and mechanical stress.

Reduced Inrush Current

Limits starting current to 8–6× FLC
Protects electrical infrastructure
Reduces peak demand

Controlled Torque Application

Smooth torque ramp-up
Reduces mechanical shock and slip
Minimizes drivetrain stress

Extended Equipment Life

Lower thermal and mechanical stress
Extended service intervals
Reduced maintenance and CAPEX

Soft Stop Control

Controlled deceleration
Prevents fluid hammer and belt rebound
Protects system components

Integrated Motor Protection

Overload, phase loss, imbalance, stall
Thermistor input support
Integrated protection and control

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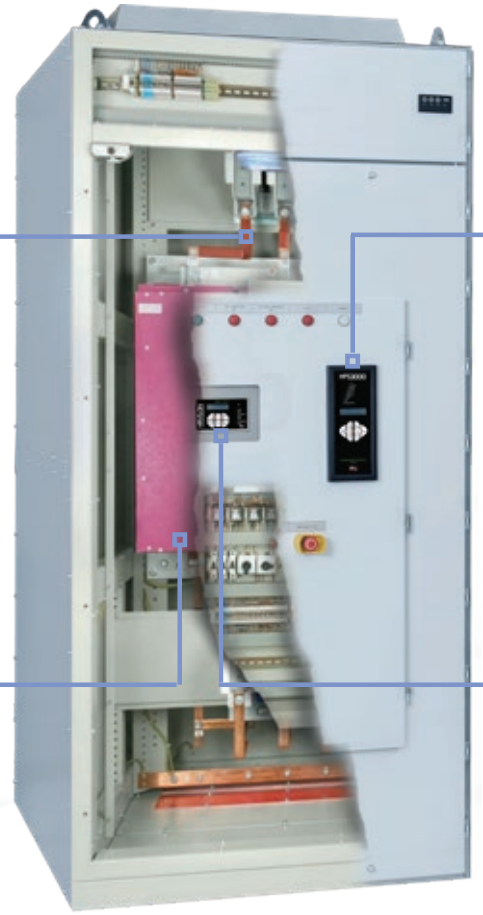
HRVS-DN

MODELS | 13.8-2.3kV, 2,500-60A

Medium voltage soft starter engineered for large motors in critical mining applications, delivering controlled starting, high reliability, and reduced electrical and mechanical stress.

Electronic Potential Transformer

Soft Starter Power Module



Motor Protection Relay

Control panel & HMI

Full rangefrom 60A-2,500A

Up to 50°C Ambient temperature

Unique Fiber-optic Firing System

Wide range auto-frequency tracking

User Friendly Configuration & Operation

Automatic Firing Angle Triggering (Generator Operation)

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DriveStart

UP TO 6.6kV | 150 - 750A

IGBT-based soft starter providing high starting torque with low current, ideal for high-inertia mining applications and weak grid conditions.

- Starting at very low current (+/- nominal current)
- Nearly unlimited number of starts / Hr
- Synchronized closing of bypass contactor at end of acceleration soft start
- Synchronized opening of bypass for soft stop
- Compact footprint compared to MV VFD solutions
- Air cooled cooling system
- Low maintenance schedule
- On bypass IGBT modules are not energized
- Simple multistart/stop design philosophy (up to 9 motors)

RVS-DN

MODELS | 31 - 3300A , 230 - 1000VAC

Heavy-duty soft starter designed for demanding mining applications with high starting torque and continuous operation requirements.

Key Technical Features

Thyristor-based soft starter	Multiple starting and stopping profiles
Current limiting and torque control	Built-in motor protection functions
Wide power and voltage range	

High starting torque for loaded starts

Reliable operation under harsh conditions

Reduced mechanical stress on driven equipment

Minimized voltage drop on weak supply networks

Stable performance in continuous duty cycles

iSTART

MODELS | 17-1100A, 208-1000VAC

Compact and cost-effective soft starter for standard mining applications requiring reliable motor control and protection.

Key Technical Features

Current ramp and voltage ramp start	User-friendly interface
Soft stop functionality	Communication options for system integration
Integrated motor protection	

- Smooth motor starting and stopping
- Reduced mechanical and electrical stress
- Compact design for easy installation
- Cost-effective solution for standard duty
- Improved system reliability

MOTOR PROTECTION & CONTROL

Key Functions

Overload and thermal protection

Phase loss, imbalance, and sequence protection

Stall and jam detection

Undercurrent and dry-run protection

Thermistor (PTC/RTD) input monitoring

Event logging and fault diagnostics

Configurable trip and warning thresholds

Where It Fits in

Installed at the motor feeder or within motor control centers (MCC)

Protects motors, cables, and associated equipment

Operates alongside soft starters or across-the-line starters

Forms part of the overall motor control and protection architecture

Integration - Soft Starter

Complements built-in soft starter protection functions

Provides additional or independent protection where required

Communicates with soft starters via digital I/O or communication protocols

Enables coordinated control, monitoring, and fault management

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Advanced protection layer for critical motor-driven systems

MPS3000

Medium Voltage Protection

MPS6

Low Voltage Protection

TPR6

Temperature Monitor & Protection

MPS6

Motor Insulation Monitor & Protection

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APPLICATION MAPPING - MINING

Application	HRVS-DN	DriveStart	RVS-DN	iStart
Conveyors		○	●	○
Crushers		●	●	
Ball Mills	●	●		
SAG Mills	●	●		
HPGR		●	○	
Pumps			●	○
Fans			○	●
Dust Extraction			●	○
Mixers			●	○
Compressors		●		○
Auxiliary Systems				●

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WHY SOLCON-IGEL

Proven Performance
Heavy-duty applications worldwide

Harsh Environment Ready
Designed for extreme conditions

Advanced Control
Precision starting and protection

Global Expertise
Support across industries and regions

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