Regardless Of Your Mining Method, What You Are Mining Or Where In The World You Are Mining . . .

Line Power Has The Electrical Equipment For Your Mining Operation
Line Power is a division of Electro-Mechanical Corporation (EMC) of Bristol, Virginia. EMC is a privately-held, American-owned company founded in 1958. The divisions of EMC manufacture a wide variety of products used in the generation, transmission, distribution and control of electricity. These products, along with various electrical equipment repair and maintenance services are used by a diverse mix of Energy (mining, oil and gas), Tunneling, Dredging, Electric Utility and Industrial/Commercial customers worldwide. EMC has nearly one million square feet of modern manufacturing, service and repair facilities located in Virginia and Tennessee. In addition, EMC has a full-time Research and Technology Center dedicated to providing EMC divisions with the latest technological advances for electrical power distribution and control.

The business that became EMC was started in 1958 as Electric Motor Repair & Sales. By the mid-1960s, the Company had grown to fifteen Associates primarily serving the area’s textile industry. As textile customers moved out of the area the Company redirected its energies toward serving the region’s mining industry. As the mining motor business grew, customers began requesting that the Company manufacture underground power centers. Out of the response to these requests, Line Power was born in 1971. The mining electrical power distribution business grew rapidly throughout the 70s and 80s and Line Power quickly became the market leader.

Line Power designs and builds engineered electrical distribution and control apparatus used in underground and surface mining along with industrial/commercial and utility applications. This includes low and medium voltage switchgear, section power centers, belt power centers, pump power centers and controls, motor controls, substations, longwall mining power systems, vacuum circuit breaker switch houses and mine-duty transformers, along with component parts such as ground monitors, ground fault relays, high and low voltage couplers, switches and VCBs.

Line Power mine-duty transformers are known throughout the industry as the most rugged and reliable transformers available for the demanding conditions in mining, tunneling and dredging.

The Line Power Rebuild Division is a dedicated service facility offering equipment repair/rebuild/upgrade services for existing electrical power distribution equipment. Regardless of the original equipment manufacturer, the Rebuild division can rebuild and upgrade your equipment to the latest technologies while maintaining your initial equipment investment.

The Line Power Parts and Service Division offers a complete line of replacement parts along with a dedicated highly experienced and trained field service department for service, repairs and equipment commissioning.

Line Power is ISO-9001-2015 registered.
What Sets Line Power Apart From All The Others

Highly Integrated Manufacturing

Line Power and the sister divisions of Electro-Mechanical Corporation design and manufacture most of the major components used in the electrical distribution and control products it builds. These include mine-duty transformers, Auto-jet® switches, vacuum circuit breakers, DTS® Down Time Saver™ feeder circuit protectors, MAVRIC® magnetically-actuated vacuum circuit breakers, ground monitors, epoxy insulators, high and low voltage couplers. This provides Line Power with unsurpassed control of quality and delivery for these components.

A Sample of the Major Components Manufactured by Line Power

A Focus On Productivity And Reducing Unscheduled Downtime

One of the most costly events in any type of mining operation is unscheduled downtime. This is where Line Power leads the industry with its patented series of Down Time Saver® (DTS®) products.

Led by the DTS® feeder circuit protector, the first of the Down Time Saver series of products revolutionized the way feeder circuits are designed. Combining all the elements of a feeder circuit in one compact drawer made troubleshooting and repair simple and fast. By pulling out one drawer repairs could be made without shutting down the entire unit. If the repair could not be made this way, the entire drawer can be removed and replaced with a spare, getting you back up and running with minimal disruption to your mining operation.

The second generation DTS®-II feeder circuit protector maintained all the functionality of the original DTS® but in a configuration that is 30% smaller and 25% lighter.

Next in the DTS® series is the DTS®-VCB. This unit takes the 40+ years of proven reliability of the Line Power vacuum circuit breaker and packages it in a draw-out drawer arrangement. This gives you unprecedented access to the breaker at the side of the unit instead of having to lift it out the top. In areas of limited overhead space, troubleshooting and repair can be accomplished without having to move the gear to another area of the mine to access the VCB from the top.

Engineered Designs And Service After The Sale

Line Power products are engineered-designed and built for each specific application. Working directly with the customer, Line Power’s sales personnel and engineering staff design the equipment knowing where the equipment will be used and more importantly, how the equipment will be used.

But the commitment to the customer does not end there. Line Power’s Field Service Team, staffed by highly experienced, qualified and MSHA-certified technicians are available 24/7 for troubleshooting, field service, installation, commissioning and preventive maintenance services anywhere they are needed around the world.

Operating out of fully-outfitted service vans the field service team is just a call away to help solve your electrical equipment problems and get you back up and running. Preventive maintenance services can also help prevent unscheduled downtime.
Line Power Products At A Glance

**Portable Substations**
Engineered-designed substations available in pad, skid or trailer-mounted, or walk-in designs from 500 kVA to 30 MVA and from 15 kV to 128 kV. Portable pump substations up to 5 kV for frequency/soft-start/override the line applications are available in outdoor and underground rated. These can be manufactured from stainless or galvanized steel or aluminum for corrosive atmospheres. Optional fold-down towers are available.

**Longwall Controls**
Engineered-designed longwall systems up to 25 kV (110 kV BIL,) 15 MVA, complete with 5 kV Down Time Saver® modular feeder circuitry and computer-controlled human interface monitoring. Onboard computer-controlled current and voltage testing. For use in inby and outby locations. Compatible with all longwall shear, plow, conveyor and roof support manufacturer’s equipment. Custom in-house PLC programming.

**Power Centers**
Engineered-designed power centers in open or explosion-proof designs up to 25 kV (110 kV BIL,) 15 MVA, in skid, wheel or rail configurations. PLC controlled with in-house programming. Customizable mine-duty transformers. Arc flash mitigation and VFD designs available. Modular circuitry for ease of troubleshooting and repair.

**Tunneling and Dredging**
Engineered, compact designs for control enclosures that can be mounted directly on the tunnel boring machine (TBM) or independent of the TBM. Open and explosion-proof designs available. Complete dredging substations that can be mounted directly on the dredge or independent of the dredge that are water-tight and washdown-capable.

**VCB Switch Houses**
Engineered-designed VCB switch houses in 25 kV, 600 amp or 15 kV 1200 amp in skid, wheel or trailer configurations. Open or explosion-proof designs with bushing/flange/coupler entry complete with overcurrent protection and optional voltage protection. Also available as a single VCB with feed-through for re-establishing grounds along cable runs.

**Mine-Duty Transformers**
Engineered mine-duty dry-type transformer designs with the capability for seismic-ratings and transformers that meet higher efficiency requirements. Engineered designs for OEM use in electric shovels and draglines and for retrofitting into existing spaces and applications.

**Custom Electrics**
Engineered-designed motor control centers, VFDs, VCB switch houses, portable generators and E-houses in pad-mount, skid, wheel or trailer configurations. Open or explosion-proof designs for surface or underground applications.

**Switchgear**
Live-Front and dead-front pad-mounted and engineered switchgear including prep and processing plants, offices, load-out facilities, ventilation, maintenance and other surface facilities requiring utility power distribution and control.

**Repair/Rebuild/Upgrade**
The Line Power Rebuild division offers complete repair/refurbish/rebuild services for electrical equipment. Line Power Rebuild can rebuild and upgrade your existing electrical equipment incorporating the latest technologies while maintaining your initial equipment investment regardless of the original manufacturer.

**Field Service**
Line Power maintains a team of dedicated field service personnel outfitted with fully-equipped service vans for mine site service, repair and equipment commissioning. All of the service technicians are MSHA-certified for surface and underground operations.

**Junction Boxes**
Engineered-designed junction and splice boxes from 27 kV, 600 amp to 15 kV, 1200 amp with bushing/flange/coupler entry. Pad-mounted, skid or wheel mounted, outdoor and underground rated.

**Component Parts**
Line Power designs and builds a complete line of component parts including vacuum circuit breakers in 15 kV, 600 amp, 15 kV, 1200 amp and 27 kV, 600 amp; air-insulated Auto-jet® switches up to 27 kV, 600 amp and vacuum loadbreak switches at 15 kV, 600 amp. High voltage ground monitors, ground fault relays, ground monitors in both impedance and continuity-type, low voltage couplers from 600 volt, 600 amp to 1000 volt, 700 amp, high voltage couplers in 15 kV configurations along with flange terminators, slip/spill switches and high voltage fuses.
OEM And Private-Labeling Capabilities

Line Power brings 50+ years of electrical industry experience to your manufacturing supply chain by providing OEM systems and components to equipment manufacturers around the world. Engineered electrical products can be designed and built to fit an existing equipment footprint or to be incorporated into specific space and shape limitations such as those in tunnel boring machines, dredges, mining shovels, as well as portable substations and metal-enclosed switchgear used in utility, industrial and commercial applications.

The Line Power Total Life Cycle Of Electrical Power Distribution Equipment

- **New unit designed and built by the industry-leader in mining power distribution equipment.**
- **Available startup and maintenance training.**
- **Genuine Line Power Replacement Parts**
- **Dedicated MSHA-certified (surface and underground) field service team.**
- **Available upgrades such as the MAVRIC® magnetically-actuated VCB are available.**
- **Unit received for repair and rebuild. Damaged and missing parts are repaired or replaced.**
- **Completely rebuilt, repaired and upgraded unit ready to start the life cycle over again.**
Metal-Enclosed and E-House Switchgear

Line Power designs and builds engineered metal-enclosed switchgear in both indoor and outdoor configurations along with e-houses used in prep plants, hoist and elevator control houses, kiln control houses, maintenance facilities or anywhere load-interrupting switchgear is required.

Three-phase, group-operated load-interrupter switches with fuses in single and multi-bay assemblies. Manual, automatic source transfer, SCADA control and shunt-trip operation units configured to your application and specifications in voltage ranges from 5 kV to 35 kV, 600 and 1200 amp continuous 3-phase, load-break switches with fusing to 1100 amps with current limiting fuses and fusing to 720 amps with power fuses.

Options can include key locks, copper bus, metering, vacuum circuit breakers, close-coupled to transformer, special paint colors, monitoring, category A, B, and C enclosures, and stainless steel switches and enclosures for corrosive environments.

Line Power E-Houses are engineered-designed to meet your specific configuration and physical dimension requirements. These e-houses feature pre-fabricated walk-in enclosures that can be equipped with switches, vacuum circuit breakers, PLCs, VFDs, dry-type transformers, controls and auxiliary equipment installed, tested and ready to set in place.

E-houses can be pad-mounted or portable with portable units mounted on skids or trailers.
Line Power Mine-Duty Transformers

Line Power is the leader in the design and manufacture of engineered mine-duty transformers. With more than 50 years of experience, Line Power provides reliable, cost-effective dry-type transformers that provide years of trouble-free service.

Line Power vacuum pressure impregnated (VPI) transformers combine a proven dry-type transformer design with the environmental protection of a polyester coil encapsulation process, a combination that ensures reliable transformer operation in hostile environments containing moisture, dust, dirt, chemicals and other contaminants.

Line Power mine-duty transformers offer:
- Lower initial cost than cast-coil
- Flexibility of design - engineered designs to fit specific profiles
- Higher thermal overload availability
- Smaller dimensions and less weight
- Mitered Core or Butt-Lap construction

Line Power miter-core transformers offer the highest efficiencies in the industry which can result in lower overall cost of ownership of your equipment. Although actual annual savings can be more or less depending on useage, as electric utility rates continue to rise, the payback can be sooner and the cost savings even greater when compared to butt-lap core designs. Along with cost savings, miter-core transformers produce less head and noise (vibration) and reducing both can help extend the life of other components in the equipment.

<table>
<thead>
<tr>
<th>KVA</th>
<th>Core Weight (Pounds)</th>
<th>Losses in Watts</th>
<th>Annual Savings Based on $0.08 per KWH</th>
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<tr>
<td>500</td>
<td>2800</td>
<td>3265</td>
<td>2202</td>
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<tr>
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<tr>
<td>2500</td>
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<td>3189</td>
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</tbody>
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Typical cost savings when comparing butt-lap core losses with those of miter-core losses

Products Designed To Meet International Approvals and Specifications

Line Power can design and build electrical distribution equipment for worldwide mining, tunneling and dredging applications that meets the standards required and carries the necessary approvals for where it will be installed. From vacuum circuit breaker switch houses operating above 14,000 feet in elevation to longwall power centers operating underground, along with substations powering TBM’s in Europe, Russia, and Canada, Line Power electrical equipment is in operation around the world.
Longwall Control Systems

Line Power provides total longwall electrical systems from the substation to the face. Line Power longwall systems up to 25 kV (110 kV BIL) 15 MVA have been supplying power to longwall faces for years. Line Power longwall systems are engineered-designed and MSHA certified for each longwall application. All components are selected for maximum motor protection, performance and reliability.

Complete systems include the power centers, explosion-tested motor starters and master controls with intrinsically-safe voice communications, signaling, conveyor lockouts and pump controls. Line Power can integrate controls and communications for the shear, supports, pump and emulsion cars with their manufacturers and test the system as a complete unit before it goes in the mine.

Line Power longwall power centers can be equipped with the patented DTS®-II Downtime Saver feeder circuit protectors that package all the components of a feeder circuit in one draw-out drawer. For maintenance, the drawer can be pulled out and repaired or removed and replaced with a spare greatly minimizing unscheduled downtime.
Line Power electrical systems for surface mining take you from the utility feed to the mining face, beginning with the substation. Available as walk-in, pad, skid or trailer-mounted designs from 500 kVA to 30 MVA and from 15 kV to 128 kV, Line Power portable substations are engineered-designed for each application. Optional fold-down towers make transporting the substation from one place to another quick and convenient.

Line Power vacuum circuit breaker switch houses are MSHA-compliant VCB houses that are dust and water tight and feature Line Power’s proven vacuum circuit breaker(s) with optional features such as manual operation, 125 VDC shunt trip, capacitor trip device and grounded-in-open position with grounding bar. Line Power single VCBs can be used where grounds need to be re-established along a cable run.

Line Power junction and splice boxes can be used where cables need to be repaired or spliced or where cable runs need to be extended.

Line Power and sister division Federal Pacific also designs and builds pad-mounted, metal-enclosed, engineered switchgear and motor control centers for surface facilities such as prep plants, office complexes, maintenance facilities, or other fixed facilities that require distribution and control switchgear. Custom switchgear can be designed and built to retrofit into existing facilities or machinery, especially where variable frequency drives are being installed in shovels and draglines.
Line Power has been designing and building electrical equipment for conventional mining operations since 1972. These systems include portable substations, vacuum circuit breaker switch houses, power centers, pump and belt starters and motor controls along with component and replacement parts.

Line Power mine-duty transformers are engineered-designed with the capability for seismic-ratings and transformers that meet higher efficiency requirements. Custom designs for OEM use in electric shovels and draglines and for retrofitting into existing spaces and applications.

The Line Power Rebuild division can repair, refurbish and rebuild electrical equipment, regardless of the original manufacturer. Modifications and upgrades can be made during rebuild to bring your equipment up to the latest technologies while maintaining your initial equipment investment.
Line Power designs and builds engineered electrical equipment used in tunneling and dredging as both an OEM supplier to tunnel boring machine (TBM) and dredge manufacturers as well as to tunneling and dredging contractors.

For TBM manufacturers, Line Power designs and builds substations and power centers that fit limited space and special shaped areas directly on the TBM and as stand-alone units. These can be open or explosion-proof or a combination of both.

For tunneling contractors, Line Power designs and builds portable substations, vacuum circuit breaker switch houses and power centers used to power TBM, pumps and conveyor systems during the tunneling operation.

For dredge manufacturers, Line Power designs and builds substations that mount directly on the dredge.

For dredging operations, Line Power designs and builds substations that stay on the shore while powering the dredge.
From The Utility To The Face
Line Power Has The Electrical Equipment For Your Mining Or Tunneling Operation

Main, Belt and Pump Power Centers
Vacuum Circuit Breaker
Section Power Center
Longwall Power Centers
Longwall Headgate, Shearer and Conveyor Disconnected Boxes
Section Power Center
Portable Substation Feeding Surface Operations
Pad-Mounted Switchgear for Surface Facilities
Vacuum Circuit Breaker Switch House
Metal-Enclosed Switchgear for Surface Facilities
Primary Substation Feeding Underground Operations