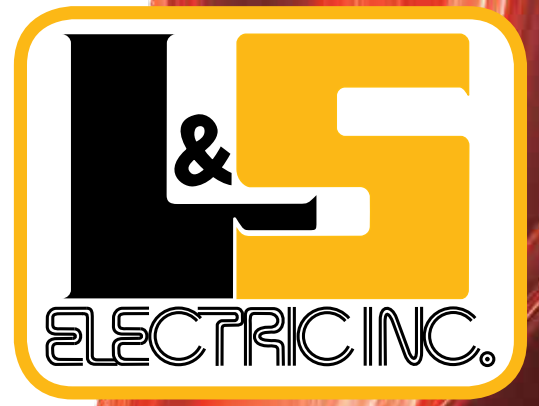


Corporate Profile



Dedicated People, Quality
Products, and above all, Service

EQUIPMENT SALES

L&S Electric offers an extensive selection of new motors, controls, drives, gearing, and other equipment solutions to meet your needs. Our energy-efficient products provide significant savings over the lifetime of the product and are backed by our network of trained technical support staff.

Electrical Equipment

- AC/DC drives
- AC/DC motors
- Gearing Products
- Adjustable and motor slide bases
- Bearing isolators
- Capacitors
- Digital tachometers
- Exciters – solid-state
- Gear motors
- Generator sets
- Industrial computers
- Industrial controls
- Man-machine interfaces
- Metric motors
- Motion controllers
- Motor covers
- Reducers
- Switchgear
- Transformers
- Uninterruptible power supplies



Responsive Service

- Thousands of items in stock
- 24/7 customer service
- Coordinated emergency response
- Comprehensive payback analysis

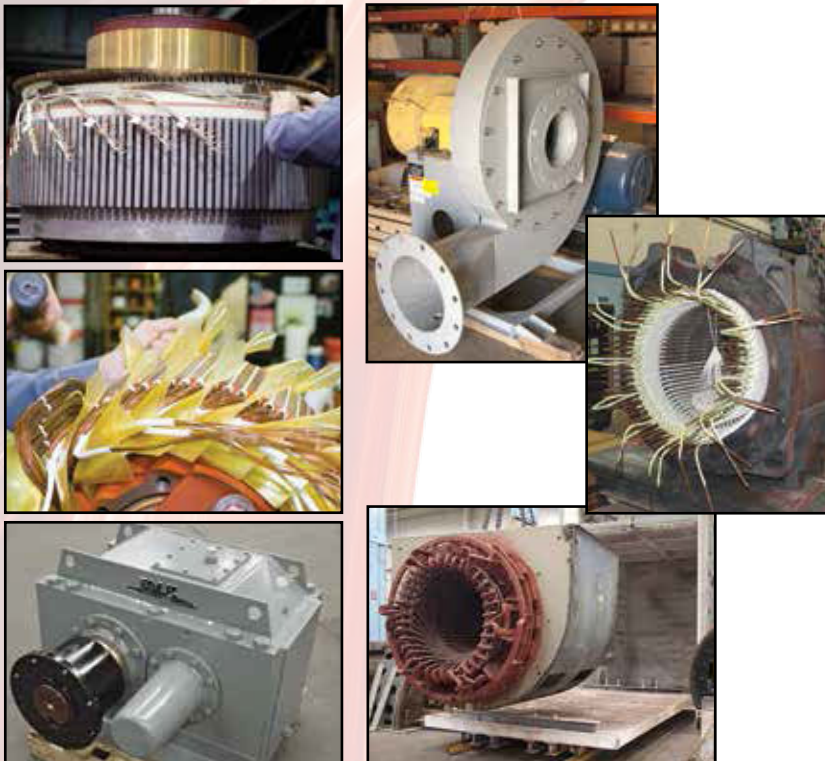
Manufacturers Represented

- L&S Electric is partners with dozens of companies for a variety of product lines. Ask your L&S Electric representative for more information.



REPAIR SERVICES

L&S Electric offers comprehensive repair capabilities regardless of brand. Our network of service centers features complete diagnostic and testing capabilities for almost any type of rotating equipment.



Repair & Re-Manufacturing

- AC motors, DC motors, and generators up to 15,000 HP
- Wound rotor, synchronous, and submersible motors
- Gearboxes and blowers
- Municipal and Industrial Pumps
- Rail equipment
- Hydroelectric generators
- Crane and shaker equipment

Capabilities

- Complete rewind, reconditioning and re-manufacturing
- Large VPI systems with multiple resin options
- Insulation systems include Class F and Class H
- All NEMA frame motors are rewound with Class H insulation and inverter grade wire.
- Motor re-engineering capabilities
- Advanced non-destructive motor circuit testing
- On-site services
- 24/7 emergency service
- Turnkey removal and installation services

Facilities

- Over 250,000 square feet of operating space
- Repair centers located throughout the upper Midwest
- 40, 20, 10, and 5 ton traveling bridge cranes
- Complete machining services
- Computer assisted load testing capabilities
- Video-conferencing capability

Certifications and Listings

- ISO 9001 certified repair facilities
- Minneapolis, Rothschild and Sturtevant facilities are UL®-listed to rebuild electric motors intended for hazardous applications

POWER SERVICES

Our Power Service groups provide complete service for all power system components, regardless of voltage. Our services include troubleshooting, commissioning, turnkey installation, repair, calibration, testing, and system design. All to ensure reliability and efficiency for energy users throughout a variety of industries.

Breakers

- Contact resistance
- Insulation resistance
- Power factor
- Primary injection (High current testing)
- Repair

Cables

- AC/DC Hi-Pot
- Partial Discharge
- VLF
- Tan-Delta
- Shield Integrity

Commissioning

Check, inspect and test every operational component of the project including, but not limited to:

- Print verification
- Design review
- Apparatus
- Instruments transformers
- Relays
- Controls
- Communications

Infrared

- Infrared scans of electrical equipment, boilers, building envelopes, etc.

Grounding

- Step and touch potential
- 3 and 4 point fall-of-potential
- Point-to-point resistance
- Assured grounding system management and testing

Engineering Services

- Arc flash studies
- Circuit loading and voltage drop analysis
- Coordination studies
- Gap analysis of electrical safety programs
- Harmonics, current, and voltage analysis
- Power factor studies
- Power quality analysis
- Project management
- Retrofit projects
- Short circuit analysis
- Specifications review and development

Motor Drives and Soft Starters

- Commissioning
- Wiring verification, programming, and application assistance
- Repair on-site and in-shop

Motor Testing

- Surge comparison
- Megger PI and hipot
- Offline PdMA testing
- Winding resistance

Relay Testing

- EM and Microprocessor
- Verification of settings
- Testing and calibration of pick-ups and timing
- Wiring check of PT and CT circuits
- Logic verification for active outputs
- Input/output verification
- Relay retrofits

Transformers

- Power factor
- Transformer turns ratio (TTR)
- Frequency analysis
- Winding resistance
- Insulation resistance
- Oil samples

Plant Shut-Down Switchgear Service

RELIABILITY SERVICES

The L&S Reliability Service team specializes in custom predictive maintenance programs designed to detect equipment problems before they cause costly downtime. Our reliability specialists are available 24 hours a day, seven days a week.

Predictive and Mechanical Maintenance Services

- Vibration analysis programs
 - Tailored to your specific plant
 - Custom training programs
- Motor current signature analysis
 - Identifies rotor bar problems
 - Performed on AC induction motors while under normal load
- DC motor brush surveys
- Electro-static discharge testing (*verify and measure harmful shaft currents*)
- Ultrasonic wall-thickness surveys
- Ultrasonic compressed air leak surveys (*may be eligible for rebates*)

Corrective Services

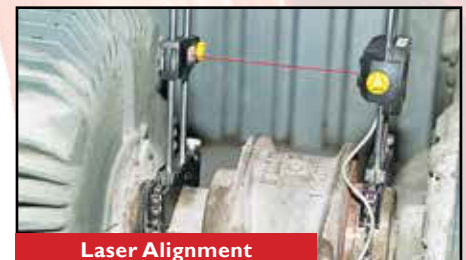
- On-site dynamic balancing
- Laser shaft alignment
- Laser belt pulley alignment
- In-place slip ring turning

Specialized Analysis Work

- Root cause bearing failure analysis
- Laser vibrometer readings (*non-contact readings up to 660 feet*)
- Multi-channel real-time vibration analysis
- Operation deflection shape analysis (*animating the motion of your machinery*)
- Sound level analysis
- Permanently mounted transducers



Vibration Analysis



Laser Alignment



Voltage Discharge Testing

ON-SITE ROTATING APPARATUS SERVICES

Remove the worry of logistics with our comprehensive range of on-site services. L&S Electric offers unique on-site capabilities, from motor testing to complete turnkey services, our customers enjoy the ease of dealing with one company!

Rotating Apparatus Services

Equipment

- AC and DC motors
- Municipal and industrial pumps
- Gearboxes
- Pump motors
- Fans and blowers
- Motor generator sets
- Diesel, steam, and hydro Generators

Services

- New motor installation and commissioning
- On-site motor/generator Repair, rewinding, testing, and reconditioning
- Rigging and crane services
- Dry ice cleaning
- Laser alignment
- Slip Ring: installation, replacement, and turning

Base Modifications



Turnkey Services

L&S Electric assumes all the responsibility for motor/pump/gearbox/blower removal, recondition, repair, and installation from the electrical, all mechanical, trucking, rigging, alignment, and startup.

- Project administration
- Design and engineering services
- Subcontracting
- Project management
- Procurement and expediting of equipment and repair
- Materials control
- Inspection of equipment prior to delivery
- Shipment, transportation
- Scheduling and quality assurance
- Pre-Commissioning and completion
- Training

Base Modifications

Lengthen the life of your rotating equipment through proper installation and repair of deteriorated bases.

Our base services include:

- Modifications
- Design and manufacture adapter bases
- Setting, leveling and grouting
- Fabrication of new bases for new motor retrofits and the replacement of existing

Dry-Ice Cleaning

Dry-ice cleaning is similar to sand-, bead-, or soda-blasting, in which a pressurized air flow accelerates material that hits a surface to be cleaned. Using this method, the dry ice particles vaporize upon impact with the surface, eliminating any secondary waste.

Benefits

- Decreased downtime
- Faster and more thorough cleaning
- No equipment damage
- Reduction or elimination of solvents
- Reduction in waste disposal
- Increased safety

Dry Ice Cleaning Performed on a Vacuum Pump Motor



HYDRO SOLUTIONS

By offering integrated solutions that are both non-proprietary and cost effective, our customers enjoy the benefits of smoother operations, increased productivity, and reduced maintenance requirements. Our knowledgeable staff is the real key to successful implementation of both specified and custom designed systems. From control panel manufacturing to advanced control requirements, L&S Electric's Hydro Solutions Division has what it takes to meet your needs.

Industrial Automation & Power System Solutions

- Industrial automation applications
- Pump station controls
- Fan controls
- Conveyor controls
- Material handling controls
- Wood processing controls
- AC drive controls
- Power system solutions
- Power system studies
- Electrical protective relay coordination
- Short circuit analysis

Control Panel Design and Manufacturing

- Complete design, supply, manufacturing, and testing
- Hydraulic and pneumatic systems
- UL-Listed® 508 control panel builder

Integrated Hydroelectric Solutions

- Governor systems
- Unit and plant automation
- SCADA systems
- Excitation systems
- Switchgear systems
- Electrical and mechanical protection systems

Project Management Services

- Engineering consulting
- Installation and construction turnkey services

Customers Include

- Public power
- Private and independent power producers
- Major investor owned utilities
- U.S. Army Corps of Engineers
- U.S. Bureau of Reclamation

Industries Served

- Automotive
- Paper converting
- Paper making
- Power Generation
- Forestry
- Lumber
- Material Handling

SCHOFIELD

715.359.3155 or 800.283.8332

DULUTH

218.729.3375 or 800.943.9549

APPLETON

920.730.0203 or 800.283.5564

MENOMINEE

906.864.2500 or 800.864.2507

STURTEVANT

262.886.1875 or 800.367.7676

MINNEAPOLIS

763.780.3234 or 800.290.9320

ROTHSCHILD

715.359.3155 or 800.283.8332

HYDRO SOLUTIONS

715.359.3155 or 800.283.8332