DARRAH's
Air Cooled Plating & Anodizing SCR Controlled Rectifiers

DARRAH ELECTRIC COMPANY, a leading manufacturer of custom built rectifier equipment since 1960, announces its new line of AIR COOLED RECTIFIERS. Our rectifiers are engineered and designed to withstand the humid and corrosive atmosphere common in the plating environment. Component selection and part location is of great importance to ensure reliable performance.

SOLID STATE SCR CONTROLLED RECTIFIERS feature independent voltage and current adjustments and provide ± 1% DC voltage regulation with current limit and ± 1% DC current regulation with voltage limit.

SOLID STATE CONTROLLED MODELS can be connected to computers or process control systems, and are found in small laboratory models as well as large production Power Supplies. Rectifiers can be supplied to operate with inboard controls or from a remote controlled station.

Cooling
Small power supplies can be natural convection cooled. Forced air cooling with fans or blowers is common in larger sizes. For harsh, corrosive or high temperature environments, water cooling is best suited.

Silicon Diodes
Darrah's diodes are rated at 300 amperes, 600 peak inverse volts. Six are used per 1000 amperes of the rectifier's DC rating. Diode currents are balanced to within 5%.

Diode Heat Sinks
Diodes are directly mounted to a copper strap, not to the heat sink.The unique aluminum heat sink features 195 sq. in. of heat transfer to maintain the most efficient operating temperature.

Copper DC Output Bus

Individual Diode Fuses

Calibrated DC Shunt

Exhaust Fan
A polypropylene fan blade is utilized, specifically designed to resist dirt buildup and last for years. The fan motor is three phase, totally enclosed, and lubricated for five years usage.

Sealed Side Mounted Control Enclosure

Finish
Two part polyurethane provides exceptional resistance to the environment. Available in all popular colors.

Cabinet
Heavy duty steel construction.

Power Transformer
Darrah manufactures its transformers to our own rigorous specifications. Each transformer has isolated primary and secondary windings and are wound with all copper wires. The transformer is rated at NEMA class "H." Each transformer is designed and tested to provide continuous nameplate rating.

SEALED SIDE MOUNTED CONTROL ENCLOSURE

- Environmentally sealed
- Convenient location for:
  - Terminal connections
  - Printed circuit boards
  - AC line and DC overload devices
  - Fuses and Overloads
  - SCR control connections
  - Maintenance and servicing

SCR Firing Board
- Common industry standard
- Digital LSI technology
- High quality keyed quick disconnect plugs and jacks
- Operational status indicating lights
- Not phase sensitive

Step Down Voltage Control Transformer

SCR Modules
With through-the-wall design. Sensitive electrical connections are located in sealed side enclosure, eliminating short circuits commonly found in humid environments.

Terminal Strip
For remote control connections.

Control Circuit Fuses

AC Line Contactor

Fan Fuses

Fast Response DC Overload

Popular Darrah Rectifier Options

PLC Interfacing and Controlling
Darrah offers a four channel PLC interface. Two channels control the DC output current and voltage. Two monitor the voltage and current. Use PLC or processes controllers to start or stop the rectifier, initiate ramp cycles, and timer functions. Monitor safety circuits and alarms.

Digital LED Meters
.5" high display, available with NEMA rated clear sealed covers.

Ampere Time Meters
Accurately record coating thickness over time. Available in preset or totalizing counters.

Batch or Cycle Timers
Unlimited number of uses available in seconds, minutes or hours.

Internal DC Polarity Reversing
Manual or automatic controls.

PLC Programming
Control DC output current and voltages. Start processes or polarity reverse.

Adjustable DC Voltage Ramp Control
Repeatable accuracy in processes requiring a preset DC voltage rise over an adjustable time period.

Ripple Filtering
Available to maximum 5%, 2%, and 1% throughout entire DC output range.

Adjustable Transformer Taps
Improve efficiency and electrical cost savings with selected voltage taps. Unlimited choices available.

Custom Enclosures
Special enclosure shape or size. Multiple independent units in one cabinet.

Air Filters
Washable aluminum or stainless steel air filters.

12 Pulse Designs
High efficiency, ultra low output ripple, lower harmonics.

Remote Control Enclosure

Sealed thermoplastic remote enclosures can house single or multiple rectifier controls. Exceptional chemical resistance meets NEMA 12 and NEMA 4X requirements.

LED DC Ammeter and Voltmeter
.5" high display, 1% accuracy, with sealed covers.

Manual Polarity Reversing Switch
With forward and reverse indicating pilot lights.

Digital Process Timers
Adjustable between .01 seconds and 999 hours.

Individual Constant Voltage and Current Controls

Start and Stop Push Buttons
1" oil tight.

Standard Protection and Safety Circuits

- AC Line Fuses
- Start and stop control circuits stepped down to 115 volts. Includes isolation transformer with primary and secondary fuses.
- AC Line phase loss and phase imbalance protection.
- AC Line Contactor
- Thermostats located in strategic areas as power transformer, SCR's, diodes, and heat sinks.
- Fan or blower fuse protection.
- DC current and DC voltage limit controls.
- Fast response electronic DC overload protection.
- Diode and SCR fuse protection available with blown fuse indicators.

Input Line Requirements
208 through 600 volts, 3 phase, 50 or 60 hertz. Smaller production models can be ordered with all common single phase AC line inputs.

Duty Cycle
All models are designed to be operated at 100% nameplate rating continuously at 40° C ambient.

Warranty
Warranty on all components and workmanship is one year.

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DARRAH ELECTRIC COMPANY

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