Deliver power safely and efficiently in the toughest applications

SolaHD™ Transformers

Delivering required voltages safely and efficiently, to applications across manufacturing facilities.

EMERSON

Transformers impact safety, maintenance costs, and operational downtime.

Procuring, installing, and maintaining transformers that safely and efficiently deliver proper voltages can be a challenge. Suppliers assume a level of technical knowledge about transformers that makes selecting the proper solution difficult and minimal information is available about configured solutions. Installing and transporting a transformer may require special equipment and complex wiring requires trained personnel to connect properly. Maintenance or downtime may be increased by conditions such as dirt, moisture and vibration unless additional transformer design considerations are taken. Why risk increased downtime, frequent maintenance, and possible safety issues by utilizing poorly designed transformers?

Limited kVA ranges and certifications provide small opportunities for engineers in industrial and hazardous locations. Expanded certifications and configurations let the transformer act as a single solution for multiple NEMA applications.
— Utility Products. Jan 25th, 2018. https://www.utilityproducts.com/tools-supplies/article/16025706/power-transformer-automation-transformers-reduce-total-cost-of-ownership

Longer lifespans, low maintenance and ratings that exceed industry standards.

In the automotive, material handling, packaging, and oil and gas industries, reliably converted voltage is essential to keeping facilities and plants running smoothly. Without the right transformer to meet your specific application requirements—such as size, temperature , voltage capacity, and environmental conditions— safety can be compromised, downtime can increase, and maintenance demands can rise.

Improve Machine Availability

Ensuring clean power is provided to the most critical equipment keeps productivity high and costs down. SolaHD transformers by Emerson reduce unplanned downtime by providing clean power. We also help you protect sensitive equipment from power surges and noise by filtering noise, harmonics, and dangerous frequency variations.

"The effects of power outages on business: 98 percent of organizations say one hour of downtime costs over $100,000."

—Source: Foster Fuels. The Effects Of A Power Outage On A Business. February 08, 2018. https://www.fosterfuelsmissioncritical.com/power-outage-effects-businesses/

Increase Reliability

Automotive, material handling, packaging, and oil and gas environments depend on electronic equipment to function properly. Power quality issues such as voltage fluctuations, harmonic distortions, noise and power outages can disrupt production, damaging equipment and corrupting valuable data. SolaHD transformers help facilities manage power anomalies, ensuring safe operation.

"Eight key U.S. market segments studied by E Source forfeit about $27 billion per year due to power outages... manufacturers tend to suffer the most from long outages. "

—Source: Peter Maloney. What is the Value of Electric Reliability for Your Operation? May 7, 2018 https://microgridknowledge.com/power-outage-costs-electric-reliability/

Added Flexibility

Power is an essential component in production and automation. Having control over that power, and where it is installed, provides flexibility. For the automotive, material handling, packaging, and oil and gas industries, SolaHD Transformers are the ideal solution. Giving control, from within or outside the panel, when needed—saving the customer money and panel space, in addition to answering application specific needs.

"High ambient temperatures inside the panel create the need for expensive panel cooling for conveyor control systems. Having a transformer that reliably operates at elevated ambient temperatures means the transformer can be mounted outside of the protective enclosure freeing up precious panel space. "

—Emerson Case Study for Conveyor Systems, Global

Ideal for a wide variety of applications in varying markets.

Automotive

For the automotive industry that needs highly reliable, low noise transformers for most general purpose, and control transformers across plant floors, SolaHD Transformers are the perfect solution. They can handle applications including:

- Plant power distribution system (ventilated, LVGP)
- Motor control branch circuits (drive, k-factor)
- UL 508A control panels in these markets (industrial control)

Oil and Gas

When the oil and gas industry needs encapsulated transformers and hazardous location rated transformers, SolaHD Automation Transformers are the answer. They can handle applications including:

- Power distribution (encapsulated, wall or floor mount)
- Lighting (general purpose, encapsulated)
- Control (industrial control)
- Heat trace (encapsulated, wall or floor mount)

Material Handling

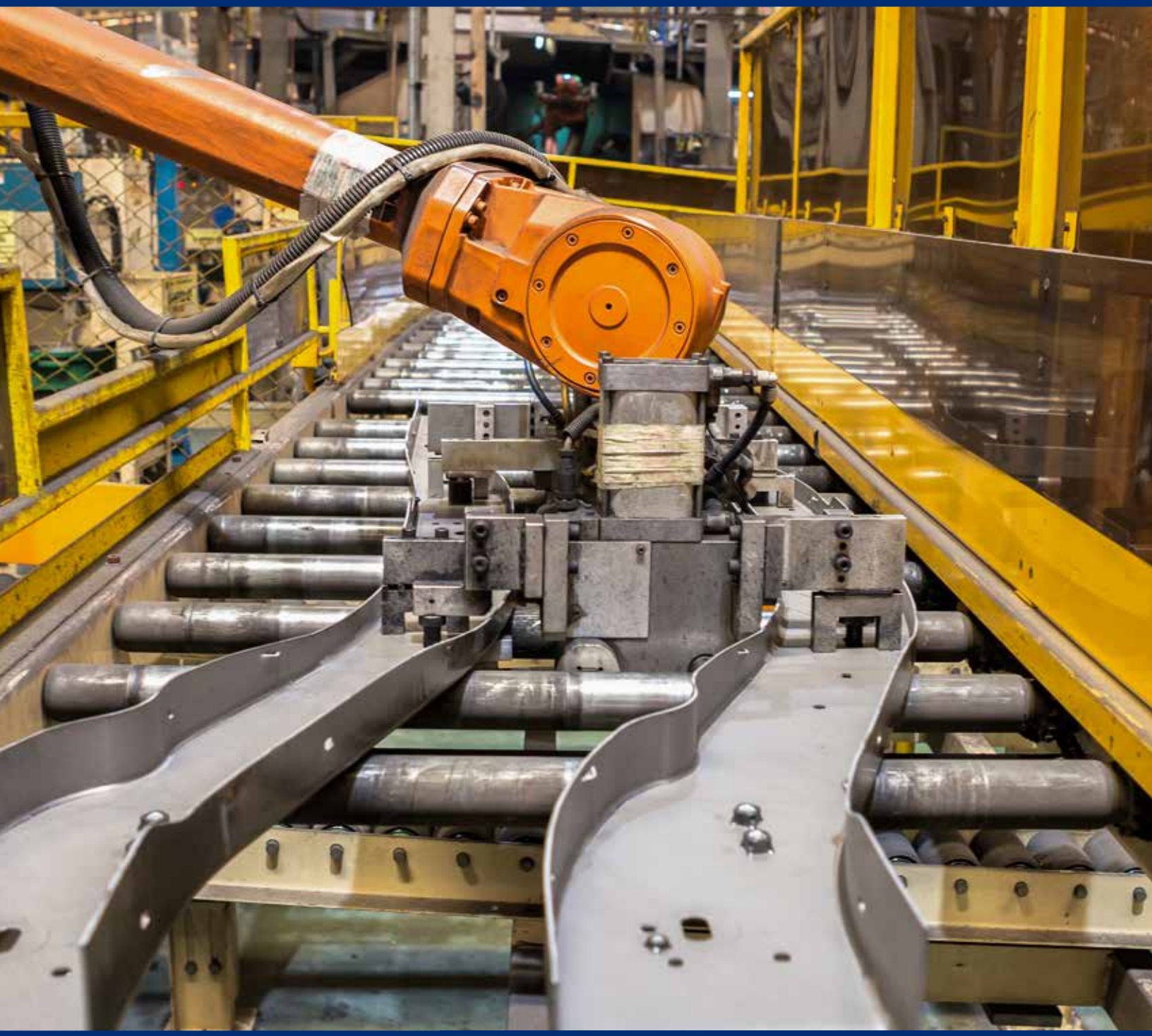
For material handling facilities that need smaller kVA transformers distributed across systems, SolaHD transformer lines are an exceptional choice. They can handle applications including:

- Motor control branch circuits (drive, k-factor)
- UL 508A control panels in these markets (industrial control)

Packaging

When packaging companies need transformers that run short term duty cycles, they look to SolaHD transformers. They can handle applications including:

- Conveyors (non-ventilated)
- UL 508A control panels in these markets (industrial control)



Envision high-quality transformers that accommodate all of your specific requirements, safely and efficiently.

SolaHD Delivers Greater Reliability.

Computers, controllers, and sensors are essential to today's production and manufacturing. When transformers fail, power to these components is compromised, potentially damaging equipment and corrupting valuable data.

Additionally, the location of equipment in the plant or facility indicates what type of transformer (and its rating) is required. Without the proper certifications, the potential for moisture, dirt and industrial contaminants can impact the transformer, creating unreliable power, short lifespans, and frequent maintenance. For solutions with the voltages you need, protection from unwanted electrical noise and longer lifespans, SolaHD Transformers can improve customer results by delivering greater reliability.

Low failure rate

Machine builders and end users need longevity from transformers. SolaHD Transformers offer a longer lifespan—and a ten year limited warranty—little to no maintenance, and the assurance of reliability, even with 24/7 usage.

The needed voltages

Improper voltage can cause premature failure of electrical and electronic components due to overheating. SolaHD Transformers offer an efficient solution that delivers proper voltages while meeting the required standards and certifications that are essential to EPCs looking to meet their customer specifications.

Reduced noise

Electrical noise generated on the factory floor by sources such as variable frequency drives can cause degradation to electrical and electronic equipment. SolaHD Transformers offer galvanic isolation, protecting equipment from surges, reducing noise and providing electrostatic shielding, increasing operating life.

Our transformers offer more flexibility.

Automotive, material handling, packaging, and oil and gas industries have specific application requirements. Without flexible transformers that can provide the proper voltage—with the right certifications—safety is compromised, and delays can happen.

SolaHD Transformers by Emerson are standard transformers available in multiple voltages, offering the needed flexibility to get the job done right in a variety of enclosure types, including open, ventilated and encapsulated. Additionally, with Emerson's expert support, configured transformers can be tailored for more challenging applications.

Control inside (or outside) the panel

SolaHD products deliver power on the machine—with direct on-machine mounting to minimize cabling to powered devices—or in the panel giving you the flexibility to control power, from within or outside the panel when needed.

Multiple voltages, one transformer

SolaHD Transformers offer multiple voltages in one transformer—50 VA through 500 kVA, 50/60 Hz designs available for worldwide use. Designs can also be configured to answer your unique application requirements.

Exceptional support

Emerson's engineering team designs solutions unique to your application challenges. Manufactured in the US by an experienced and knowledgeable production team. Our exceptional technical support team and online resources help distributors and end-users select the right transformer design for your specific needs.

Our experience and resources span over 100 years.

Since 1915 SolaHD products have been focused on providing total power quality throughout manufacturing facilities. SolaHD Transformers by Emerson are created to perform in a vast range of configurations, meeting the requirements for variables such as power, heat, voltage and environmental conditions. Able to handle a wide range of applications across manufacturing facilities, these solutions include general purpose, low temperature rise, K-Factor, copper wound, hazardous location, buck-boost, drive isolation, and industrial control amongst others.

Superior manufacturing capabilities

Behind every configured Emerson transformer is a team of highly skilled engineers who can design solutions to accommodate your diverse needs. By offering standard and configured products we can handle your specific environmental factors accommodating your unique application challenges with our manufacturing facility's high level of experience, knowledge, and expertise.

We're here to help

Emerson's experienced technical support team and online resources are ready to help you specify the right transformer design for your specific needs. Every manufacturing environment requires different levels of protection. Emerson offers a broad range of SolaHD products, allowing you to select the best solution to deliver proper voltages for your applications and facilities.

Our Rainsville Alabama manufacturing facility—world class manufacturing in the USA

Emerson manufactures many of our SolaHD transformers in the USA at our Rainsville, Alabama facility. With Rainsville's level of experience, knowledge, and expertise, superior customer service and reliability are standard. Products typically ship in 3-5 days depending on inventory. Configured products typically ship in 5-20 days depending on complexity. Our shipping service Levels consistently perform at ~98% promise and request dates, you know you're in good hands

Industrial Control Transformers

Without a highly stable secondary voltage during brief overloads (high inrush currents), control systems can be damaged, causing equipment failure and increased downtime. Reliable control transformers that can convert the available voltage to accommodate electrical circuit or equipment requirements are essential for your demanding industrial applications.

The broad range of SolaHD industrial control solutions by Emerson exceeds NEMA ratings for inrush and regulation to ensure control systems are powered correctly. Available from 50 - 5000 VA, with IEC requirements and IP20 (touch proof covers ordered separately for E models) for European applications, a wide range of temperature rise, and encapsulation (through 1000 VA) for longer life SolaHD industrial control transformers (ICT) can handle even your toughest applications

Industrial Control Transformers

SBE Series Transformers

SBE Series industrial control transformers are available from 50 to 5000 VA, 55°C rise, copper windings and encapsulation through 1000 VA. This low temperature performance results in longer life.

- Epoxy encapsulated to seal the transformer windings against moisture, dirt, and industrial contaminants
- Extra deep, molded terminal barriers reduce the chance of electrical failure resulting from arcing or frayed lead wires
- The rugged construction and proven reliability of the SBE design is uniquely suited for all industrial environments
- Meets or exceeds NEMA Standard ST-1 and ANSI C89.1 for load inrush capability

SMT Series Transformers

SMT Series industrial control transformers offer 115°C rise and aluminum windings, for applications where good voltage regulation and higher power capacities (1000-5000 VA) are required.

- Economical and compact with traditional open wound varnished coils
- Class 180°C insulation system and 115°C rise under full load
- Excellent cost benefits with NEMA regulation characteristics and electrical performance specifications
- Available from 1000 to 5000 VA, 60 Hz unless noted
- Meets or exceeds electrical requirements of NEMA, ANSI, NMTBA and JIC

HSZ Series Transformers

HSZ Series industrial control transformers are provided with a choice of UL Listed Type 3R, 4, 4X or 12 enclosures. Available from 1 to 10 kVA, 80°C rise, and copper windings. These fully encapsulated transformers provide protection from harsher environments, for reliable installation outside of a control cabinet. The HSZ Series is ideal for applications where cost or heat issues make mounting the transformer outside the control panel necessary.

- UL Class I, 80°C insulation system, 80°C temperature rise under full load
- Meets or exceeds NEMA regulation standards
- Copper windings
- Encapsulated, NEMA 3R, 4/12 and 4X enclosures

ICE International Series Transformers

ICE International Series industrial control transformers are available from 50 to 2000 VA, 55°C or 80°C rise, and copper windings with epoxy encapsulation. Available with IP20 touchproof terminations, these transformers meet NEMA, ANSI and IEC requirements.

- CE Marked and cULus Listed
- Epoxy encapsulated for cooler operation and increased reliability
- 50/60 Hz frequency
- Meets or exceeds electrical requirements of NEMA, ANSI and IEC

Distribution Transformers—Ventilated 15 kVA to 500 kVA

Outdated, poorly designed, inefficient distribution transformers can be costly to run, while increasing safety risks and equipment failure. Energy efficient SolaHD Distribution Transformers by Emerson are available in 15 kVA to 500 kVA ventilated models. These Department of Energy (DOE) and Natural Resource Canada (NRCan) compliant transformers provide reliable voltage transformation in the electric power distribution system matching the voltage you have with the voltage you need.

Our space-conscious products make scaling up easier. They are easy to install and connect, with no vaults required for installation and no long, expensive feeder lines needed. These transformers can be located close to the load and meet applicable certifications and standards

General Purpose Transformers

SolaHD General Purpose Transformers are energy efficient dry-type transformers with 600 Volt Class, isolation type, single and three phase, 15 kVA through 500 kVA available. Indoor and outdoor series options.

- Energy Efficient Compliant to DOE and National Resources Canada (NRCan) ①
- Meet applicable industry standards, are Listed in accordance with UL 5058 and UL 1561 specifications
- UL Class 220°C insulation system, 150°C temperature rise under full load
- UL-3R ventilated outdoor enclosures when used with optional weather shields (order separately)
- Electrostatically shielded for quality power
- Terminal board connections and spacious wiring compartment
- Panel enclosure design reduces labor time. Wiring diagram on inside front cover

Low Temperature Rise Transformers

Low temperature rise transformers are designed for lower temperature rise in the conductors and core that result in longer life and better overload capability. All models available with either a 115°C or 80°C thermal rise and a Class 220°C insulation system.

- Energy Efficient Compliant to DOE and National Resources Canada (NRCan)①
- Meet applicable industry standards, are Listed in accordance with UL 5058 and UL 1561 specifications
- UL-3R ventilated outdoor enclosures when used with optional weather shields (order separately)
- Reduction in temperature rise increases reliability
- A short term overload capacity of 15-30% without compromising normal life expectancy

K-Factor Transformers

K-Factor Transformers are designed to reduce the heating effects of harmonic currents generated by loads such as variable frequency drives, power supplies and other electronic loads. The K-Factor rating is an index of the transformer's ability to withstand harmonic content while operating within the temperature limits of its insulating system. SolaHD K-Factor transformers have standard ratings of K-4, K-13, and K-20; other K-Factors are available as configured products.

- Energy Efficient Compliant to DOE and National Resources Canada (NRCan) ①
- Meet applicable industry standards, are Listed in accordance with UL 5058 and UL 1561 specifications
- UL Class 220°C insulation system, 150°C temperature rise under full load
- UL-3R ventilated outdoor enclosures when used with optional weather shields (order separately)
- Conductors to carry harmonics of a K-rated load without exceeding insulation temperature ratings
- Basic design takes "stray losses" into account and functions within safe operating temperatures

① *Selectected models only.*

Automation Transformers - Non-Ventilated 50 VA to 150 kVA, Drive Isolation 7.5 kVA to 440 kVA and Industrial Control 50 VA to 10 kVA

In certain applications, harsh industrial conditions are an everyday occurrence. Poorly designed and manufactured transformers—and transformers without the proper NEMA or Class/Division ratings— can leave your location exposed to power disturbances and possible equipment failure and delays. Whether you need a transformer that provides a voltage change to match the required voltage of a SCR Drive, or an encapsulated and rugged solution which protects from dust, moisture, and vibration, SolaHD transformers are the superior choice.

Automation Transformers - Wall Mount - Non-Ventilated 50 VA to 45 kVA

SolaHD Automation Transformers are rated for hazardous locations as well as harsh industrial environments. Encapsulation and rugged UL Listed/NEMA Type 3R enclosures protect the transformer from dust, moisture, and provide extra shock and vibration resistance. SolaHD transformers fully comply with the latest edition of the National Electrical Code for Class I, Division 2, Group A, B, C and D locations when installed in compliance with NEC 501.100 (B).

Single Phase: 50 to 250 VA

- UL Listed/NEMA Type 3R totally enclosed non-ventilated for indoor and outdoor service
- Low temperature rise, UL Class I30 °C insulation system, 80 °C temperature rise under full load
- Conduit knockouts for side entry into wiring compartment
- Copper lead wire terminations

Three Phase: 3 to 45 kVA

- UL Listed/NEMA Type 3R encapsulated enclosure for indoor and outdoor service. NEMA Type 4/12 or 4X available as configured products.
- Electrostatically shielded for quality power on sizes 1 kVA and larger
- UL Class 200 °C insulation system, 115 °C temperature rise under full load
- Conduit knockouts for side entry into wiring compartment (Type 3R versions only)
- Copper lead wire terminations
- 500 VA to 45 kVA units are encapsulated with electrical grade silica and epoxy for industrial applications
- Available as standard in cold rolled steel or painted stainless steel

Automation Transformers - Floor Mount - Non-Ventilated 15 kVA to 150 kVA

SolaHD Floor-Mounted Automation Transformers are rated for hazardous locations as well as harsh industrial environments. Encapsulation and rugged enclosures protect the transformer from dust, moisture, and provide extra shock and vibration resistance. SolaHD transformers fully comply with the latest edition of the National Electrical Code. Non-Ventilated 15 kVA to 150 kVA these transformers are cULus Listed for Class I, Division 2/Zone 2 hazardous locations temperature classification T3 or T3C and UL Listed/NEMA Type 1, 2, 3R, 4, and 12.

- cULus Listed for Class I, Division 2/Zone 2 hazardous locations temperature classification T3 or T3C
- UL Listed/NEMA Type 1, 2, 3R, 4, and 12 (with optimal NEMA 4X ANSI Gray) encapsulated enclosure for indoor and outdoor service
- UL Class 200 °C insulation system, 115 °C (40 °C Ambient) temperature rise under full load
- Electrostatically shielded for quality power
- Gland plates standard for ease of conduit entry
- Copper terminations on all units

Drive Isolation Transformers: 7.5–440 kVA, Three Phase

SolaHD Drive Isolation Transformers are specifically designed to handle the mechanical stresses, voltage demands, and harmonics associated with SCR (Silicon Control Rectifier) applications. This solution was created to magnetically isolate the incoming line from the motor drive. This solution provides a voltage change to match the required voltage of the SCR Drive. Standard designs are delta primary and wye secondary to match the common power sources required in most three phase rectifier circuits.

- Meet applicable industry standards, are Listed in accordance with UL 5058 and UL 1561 specifications
- UL Class 220°C insulation system, 150°C temperature rise under full load
- UL-3R ventilated outdoor enclosures when used with optional weather shields (order separately)
- Available from 7.5 thru 440 kVA, 3 Phase, 60 Hz
- Isolation minimizes load disturbances caused by the SCR drive
- Electrostatically shielded for quality power

Total power quality solutions for your toughest applications.

SOLAHD™

Installation savings, lower maintenance requirements, and a more competitive Total Cost of Ownership to engineers, electrical distributors, and industry experts.

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