












Rhodes Electrical Sales

Serving West TN., North MS. & Arkansas



Industrial Medium & High Voltage Power Products

Product	Offering		Benefits
Transformers	Pad Mount		Single-phase pad-mounted transformers; Three-phase pad-mounted transformers; generator step-up. Product scope: Single-phase up to 250 kVA; Three-phase up to 3,000 kVA; Primary voltage up to 36 kV; Secondary voltages up to 690 V; Cooling type: ONAN; Available fluids: mineral oil, ester fluids and silicone.
	Unit Substation & Substation Distribution		Substation distribution transformers have cover-mounted, primary and secondary bushings and can be provided with load tap changers (LTC). They are generally connected directly to overhead utility power lines. Unit substation distribution transformers are generally close coupled to switchgear, motor control, bus duct, or another type of incoming and outgoing equipment. Product scope: Rated power: up to 10,000 kVA; Rated voltage: up to 33 kV; Cooling type: ONAN / ONAF / ODAF; Available fluids: mineral oil and ester fluids (natural and synthetic)
	Medium & Larger Power Transformers		Large-Medium distribution transformers are used for receiving energy from higher voltage levels and to transform and distribute this energy to lower voltage substations or directly to large industrial consumers. Transformers in this range are three-phase and can be manufactured with off-circuit tap changer or on-load tap changer. Transformers provided with on-load tap changer usually have a separate tap winding. The core is constructed of grain-oriented steel laminations. The windings are made of either copper or aluminum conductor and wound in a foil or multi-layer configuration. The tank construction can be a corrugated fin wall type or of a rigid construction type with radiators typically used for larger transformers. Fans can also be mounted on the radiators to provide additional cooling capacity. Product scope: Primary voltage: up to 36 kV; Available fluids: mineral oil, dimethyl silicone, esters and synthetic hydrocarbons
	Dry Type; Open wound (VPI & VPE); Cast Coil & Resibloc		Rated power: 100 kVA to 32 MVA; Rated voltage: up to 52 kV primary; 15kV secondary; 3 Insulation types for various applications; Maximum BIL: 250 kV; Vertically integrated with in-house bus and enclosure manufacturing. Product scope: Vacuum cast coil (VCC) transformers - Up to 63 MVA, High voltage up to 36 kV, Low voltage up to 24 kV; Open wound transformers - Up to 30 MVA, High voltage up to 36 kV, Low voltage up to 24 kV. RESIBLOC transformers - Up to 63 MVA, High voltage up to 36 kV, Low voltage up to 24 kV
Capacitors	Capacitor units: 2.4 kV – 24.94 kV; Banks: 2.4 kV – 800 kV; Low-voltage capacitors CLMD		Open-rack and metal enclosed; Externally fused, fuseless and internally fused; Lowest field failure rate in the industry; Unique design for superior reliability; Conservative design; Folded edge foil; Soldermat element connections; Solid terminal stud connections; Passes Overvoltage Endurance Test. Low-voltage dry capacitors for low power factor and power quality problems. As a source of reactive power, Hitachi ABB Power Grids low-voltage capacitors provide significant improvement of power quality and reduction in energy costs by:
Dead Tank Breakers	34.5 kV – 800 kV voltage 31.5 kA – 90 kA short circuit ratings, Up to 5000 A continuous current - ANSI / IEEE and IEC ratings - C2 and M2 capable - Single-pole or three-pole operation		<ul style="list-style-type: none"> - 0.5% annual leak rates - Minimal maintenance - Small footprints and low SF₆ volumes - Controlled switching and monitoring packages
Gas Insulated Substations	46 kV – 1,100 kV Short circuit ratings 31.5 kA – 80 kA 4000 A and 5000 A rated GIS ANSI / IEEE and IEC ratings		<ul style="list-style-type: none"> - Rating-dedicated design with very small SF₆ volumes - Controlled switching and monitoring packages - Short installation time - Containerized solutions
Generator Circuit Breakers	GCB for generators rated 50MW – 1400MW 50 kA – 300 kA short circuit ratings; Voltages up to 30 kV		<ul style="list-style-type: none"> - 20 years maintenance cycle on HECS type - Replacement and retrofit programs - GMS monitoring system
HV Instrument Transformers	15 kV – 765 kV systems CT ratios to 4000:5 Metering and protection Oil-filled designs Head type CT's to 765 kV Inductive VT's to 525 kV Combined CT/VT to 245 kV Station Service to 345 kV		<ul style="list-style-type: none"> - Reliable shield-graded oil insulated designs - High creepage insulators - Low maintenance hermetically sealed configuration - Corrosive resistant housings - Multi-ratio, multi-core designs - Engineered solutions for specific needs
Surge Arresters	0.4 kV – 800 kV All IEEE / ANSI Class All IEC Line Discharge Class Standards IEEE / ANSI and IEC		<ul style="list-style-type: none"> - Porcelain and polymer housings - 100% Silicone polymer housings - Widest energy capability selection - On Site application & selection training
Low Voltage Power Quality Solutions	208 V – 690 V ANSI/IEEE, IEC, CSA and UL Standards Loose Capacitor Units Capacitor banks Automatic, Detuned Automatic,		<ul style="list-style-type: none"> - Dynacomp: Transient free, very fast capacitor switching - Active filter: Harmonic mitigation, power factor correction - Load balancing


















Industrial/Transformer Service Offerings

Transformer Components	Condenser, Type O Plus CTM; ABB Type O Plus C (tm) Draw-Rod Bushings; Tap-changers and switches	ABB Type O Plus CTM bushings are available in ratings from 15 kV to 800 kV; ABB Type O Plus C (tm) Draw-Rod Bushings are available in ratings from 25 kV to 196 kV; Type T condenser bushings are available 25 kV and 34.5 kV voltage classes. The Type T bushing is designed for use in high current applications (up to 21,500 A.) These bushings are also available in high temperature designs for use in bus duct applications. The condensers which are used in the Type T bushing are of the same proven construction, with low power factor and partial discharge levels, as found in Type O Plus C bushings. Offerings: Conventional on-load tap-changers; Vacuum on-load tap-changers; Motor-drive mechanisms; De-energized tap-changers and switches.
HV Service	Support 34.5 kV – 800 kV: Dead tank circuit breakers Live tank circuit breakers Generator circuit breakers Gas insulated switchgear Instrument transformers Capacitors	Installation and commissioning, maintenance, overhaul, parts, repair, training; Diagnostics, radiography, extensions, retrofit, refurbishment, upgrades, SF ₆ gas management services, monitoring ABB, ASEA, BBC, ITE, Westinghouse (oil and gas)
TRES	Engineering solutions: Services that enable deeper Transformer Intelligence; Field Service and Retrofit solutions for all types & makes of transformers; Transformer repair and remanufacturing	Testing Services – Normal evaluation tests as well as full dielectric high voltage testing at the transformer site, up to and including full thermal heat run testing; Installation/assembly/disassembly - services for new or relocated oil-filled and dry-type transformers, including transportation, relocation and logistics services; Remanufacturing – Access to and utilization of design tools to resolve issues & makes capacity upgrades or operational changes possible



ABB Industrial Medium & High Voltage Power Products

Switchgear	SafeGear™ air insulated arc resistant metal clad switchgear 5-15 kV		Rated up to 63 kA with accessibility types 2, 2B, 2C, & 2BC and smallest depths of 85" and 92" available, ABB SafeGear meets IEEE C37.20.7 & IEEE C37.20.2. Additional unmatched flexibility is achieved with ADVAC spring charge breaker or AMVAC magnetically-actuated long life breaker.
	Advance air insulated metal clad switchgear 5-15 kV		For over a decade, Advance switchgear's innovative modular design has provided customers a safe, reliable, flexible, and easily maintained switchgear portfolio with many product variations, configurations and options to best suit their needs.
	ZX family of gas insulated arc resistant switchgear 15 - 40.5 kV		Combining modern vacuum interrupter technology with a low-pressure SF ₆ gas insulation, all primary components inside the SF ₆ cabinets are maintenance free during their lifetime making the ZX family ideal for harsh, aggressive environments with a space saving compact design.
MV motor control centers	SafeGear arc resistant & Advance non-arc resistant motor control centers rated at 2.4 -7.2 kV		SafeGear's arc resistant construction maximizes protection for equipment and personnel. It provides a superior solution for increased worker safety with enhanced reliability and ease of use. Advance provides cost-effective and innovative ways to power medium voltage motors.
	Distribution protection relays & control solutions	Microprocessor relays	
Test switches	Pre-Configured Matching Unit (PCMU)		Serving as a direct replacement for ABB legacy relays, the PCMU is the best solution to mitigate risk, limit downtime, and save costs on relay upgrades. It ensures a reliable, seamless upgrade due to the risk reduction only a wire-alike solution can provide.
	COM600 grid automation controller		A flexible substation automation device that provides localized automation tasks, The COM600 gathers data from protection and control devices, such as relays and meters, combining different communication protocols into one common contact point.
	Electromechanical relays		For new applications where reliable operation is essential, in harsh environments, or in existing installations where an exact replacement is required, ABB electromechanical relays are key components for your power infrastructure.
Arc protection devices	Flexitest™ switch		FT switches provide a safe, simple, fast and reliable method to isolate, test, and service installed equipment without disturbing the system.
Arc protection devices	REA Series		With safety a top priority, the REA family of relays is designed for the protection of medium and low-voltage air-insulated switchgear against arc incidents.
Outdoor circuit breakers	R-MAG® magnetically actuated outdoor breaker		Designed with a magnetic actuator mechanism, the R-MAG breaker reduces costly maintenance intervals, increases reliability, and improves safety. This field-proven design is offered in ratings of 15-38 kV 200 kv BIL and 40 kA.
Reclosers	OVR recloser (single and three phase)		Provided with the PCD control, the OVR recloser provides single phase tripping, reduced maintenance, and increased safety with all electronics located in the control cabinet. The OVR is available with single and three phase tripping and up to 38 kV, 1200 A, 16 kA.
	GridShield® three phase recloser		ABB's next generation recloser with the advanced RER620 control and integrated web browser for easy programming, the GridShield provides smart grid technologies such as DNP and IEC 61850 with GOOSE messaging. The GridShield is available with single and three phase tripping, integrated loop control, and up to 38 kV 1200 A 16 kA.
Instrument transformers	Current and voltage transformers 0.6-34.5 kV		Dry type instrument transformers for indoor and outdoor use providing high accuracy and standard accuracy metering, relay protection, and control power. Available to OEM manufacturers and assemblers for switchgear, power transformers, breakers, capacitor banks, substations, metering
RIR Breakers			Breaker Components, ITE & ABB designs, 600V and up Drawout style. Direct replacement breakers for GE, Westinghouse, SqD, etc.
Packaging	A single point of contact for products and services		Helping to reduce costs in engineering, product, procurement, and project administration. This comprehensive approach to project management improves project coordination and reduces risk.

Med. Voltage Service	Replacement components, field & commissioning services, replacement circuit breakers, training, engineering solutions, retrofill, retrofit, & factory refurbishment	Expert service on installed equipment, as well as continuing support for equipment upgrades and replacement, are key benefits of our service structure. ABB's superior technology, backed by quality assurance programs that meet rigorous standards along with worldwide leadership in electrical distribution equipment, allow ABB to provide a multitude of aftermarket solutions and services to fit customer needs.
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