

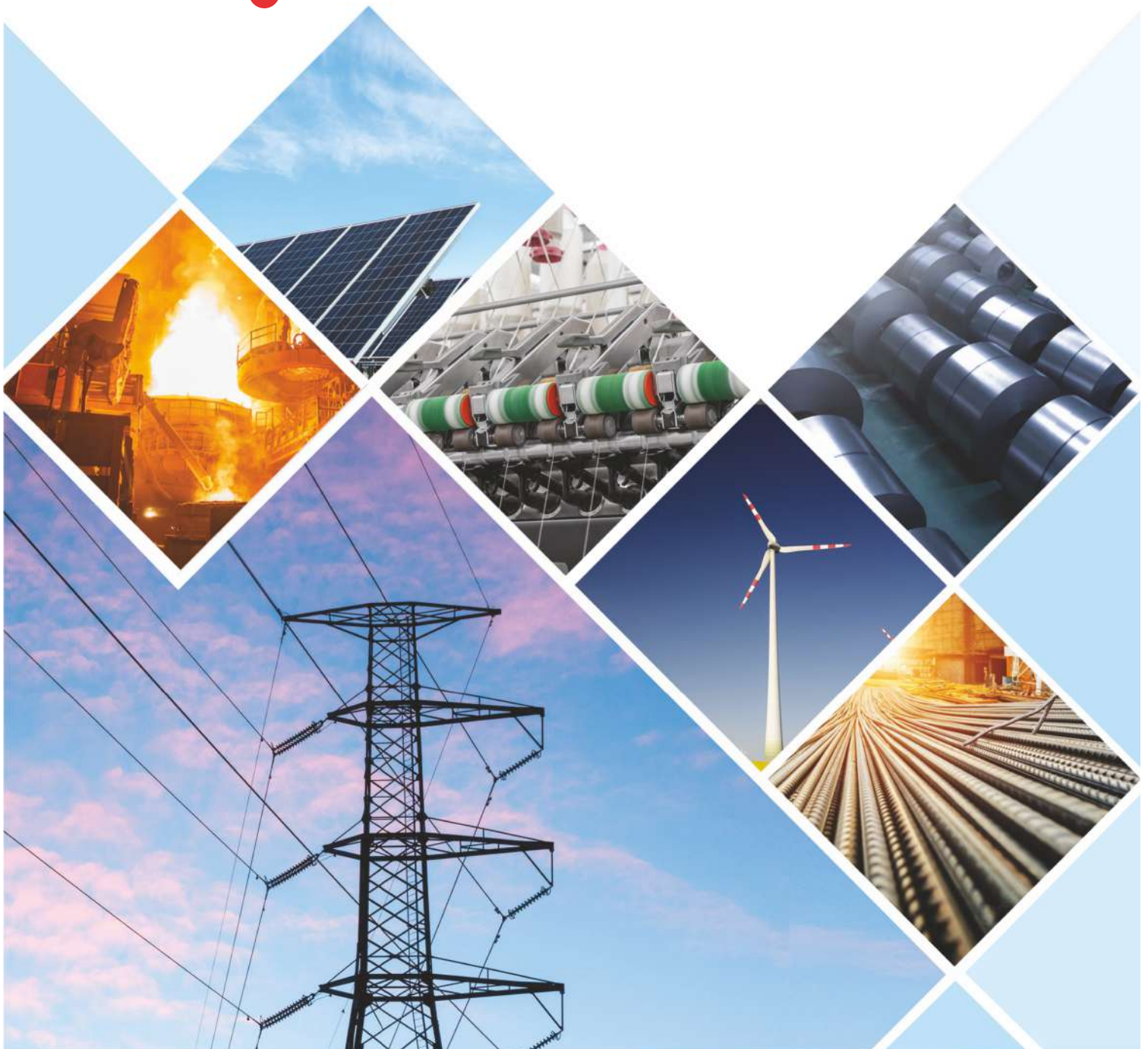


In collaboration with Frako-Germany

Trusted Name in Power Quality Management Since 1998

More Power by
Saving Energy

It's all about saving your money!



About Us

We at Clariant Power System Limited are the leading manufacturers, exporters, suppliers, and service providers of complete range of Power Quality & Reactive Power Management Systems since 1998. We have business association with Frako Germany and represent Frako for Indian and GCC market.

We provide solutions to our clients spread across diverse industrial sectors, Utility Scale Renewable Energy Generating Units, Utilities, OEMs, commercial installations to address their power quality and reactive power issues and ensure compliance with national and international standards and norms set by state regulatory bodies, CEA and Utilities. We are actively involved in the committee formed by CEA to work out a standard mechanism for Harmonic Filters for RE plants. Our systems have been working satisfactorily and maintaining Power Quality and Reactive Power parameters being increasingly and strictly enforced and monitored by way of incentives and penalties by various utilities. The systems are guaranteed to maintain required PF values, harmonic levels, energy savings and attractive ROI and support grid stability as per the National Grid Code.

Payback periods range from a few months to a couple of years. Savings are produced as a result of effective harmonic mitigation, reduced losses, power factor improvement, KVAH optimization and KVA demand reduction. Our systems have very low self-consumption and generate active power savings between 2 to 4%. The added advantage is increased life of electrical installation due to enhanced power quality.

We provide services for Power Quality Studies, Harmonic Analysis, PSCAD, ETAP, Thermography, Energy Audits. These studies are followed by offers for providing Power Quality solutions, which are designed and manufactured by us. Environmental protection is also of primary concern to us. This is reflected in our products, the way we deal with our clients and our CSR activities. We believe, "Business is Relationship and we strive for management of Relationship." We look forward to opportunities for long term fruitful associations.

One of the pioneers in Capacitors, **Madhav Capacitors Pvt. Ltd.** acquired by Clariant Power System Ltd. in February 2022 is now our wholly owned subsidiary company. The excellent, efficient and qualified team of experienced professionals is ably led, guided and developed by **CMD Mr. Tushar Deshmukh** and **CEO Mr. Baldev Raj Narang**, both of whom are renowned for their pioneering work in the electrical field.



Corporate Office



Our New State of Art Manufacturing Facility of 100,000 Sq. ft. Area

Approvals & Highlights

- FRAKO, Germany authorized representative for India and GCC Countries (Bahrain, Qatar, Kuwait, Oman, Saudi Arabia, UAE)
- First Indian Company to have Type Tested RTPFC (Thyristor Switched) Panel at CPRI Bangalore
- Type Testing of Medium Voltage Automatic Indoor type Capacitor panels at CPRI Bangalore
- Certificate of Approval by Oman Oil & Gas Industry's Joint Supplier Registration System
- Vendor Approval Letter from Kuwait Oil Company for Power Factor Correction Capacitors
- We can offer load testing of Reactive Power Compensation Panels prior to dispatch.
- India's leading service provider (Reactive Power Solution) Company Excellence award by 11th International Achievers, Bangkok-Thailand

Certifications & Accreditations



It's all about saving your money!

www.clariantindia.co.in | sales@clariantindia.co.in

Major Recent Projects Accomplished By Us - Actual Site Photographs



MV STATCOM for Steel Plant of Lloyds Group



LV SVG/STATCOM for Arc Furnace Plant of BAJAJ GROUP



LV & MV SVG/STATCOM with APFC Capacitor Banks for Hindalco Industries Limited, Taloja (ADITYA BIRLA GROUP)



17.5KV MV Automatic Capacitor Banks for Saline Water Conversion Corporation (SWCC) Jubail PS1 Station, Saudi Arabia



33KV, 27MVAR HT Fixed Outdoor Type Capacitor Bank for 50 MW Solar PV Plant for Indian Railways at Bhilai, Chhattisgarh



33KV, 17MVAR HT Automatic Outdoor Type Capacitor Banks for Siddhapur Pooling Substation Project, Gujarat



33KV Hybrid Reactive Power Compensation with SVG and Shunt Reactor for APRAAVA Energy (100MW Veltor Solar Plant)



SHUNT REACTOR & STATCOM for Compensation of Transmission Line Capacitance at Malwa Solar Power Generation Pvt Ltd., Kachalia

Other Projects Include:

- 33KV Hi-Pass Filter Capacitor Bank with Damping Resistor for Adani Green Energy Limited
 - 11KV STATCOM for Adani Mundra Solar PV Manufacturing Facility
 - MV & LV Capacitor Banks for Siemens UTCL Happy Projects (PAN India)
 - MV Indoor & Outdoor APFC Capacitor Banks for NRL, Renew Power, IOCL etc.
 - 11KV Indoor APFC Capacitor Panels for DASA Uranium Project
 - MV Outdoor Fixed Capacitor Banks for INOX Air Products & Prodair Air Products India
 - MV Indoor Power Factor Correction Capacitor Panels for Petrofac, Sharjah "ORLEN Lietuva Refinery" Europe
 - Indoor/Outdoor Panel Mounted Capacitor Banks for Air Liquide "EFS Sokhna Egypt Project" & Air Products "ARZEW BERKAOUI, Algeria"
- And many more...



Hi-Pass Filters with Damping Resistors

- System Voltage: 3.3kV.....33kV \pm 10%
- Output Capacity: 0.5 MVar.....20 MVar
- Harmonic mitigation from 2nd order to 50th order
- Specially designed to eliminate current harmonics
- Mitigates lower order and higher order current harmonics up to 49th order
- Fixed type for indoor/outdoor application



MV Static VAR Compensators / Generators (STATCOM/SVG)

- Rated Voltage: 3.3kV.....35kV \pm 10%
- Frequency: 50/60Hz; Allows short time fluctuations
- Output Capacity: \pm 0.1Mvar... \pm 200 Mvar (Capacitive/Inductive)
- Starting Power: \pm 0.005Mvar
- Response Time: \leq 5ms
- Auxiliary Power: 380VAC, 220VAC / 220VDC
- Communication Interface: Ethernet, RS485, CAN, Optical fiber
- Cooling mode: Water cooling/Air cooling
- Remote operation, modular design, simple and fast
- Reactive power controls, P.F control, voltage regulation & unbalance control



LV Static VAR Generators (SVG/SVG+)

- System Voltage: 400V.....690V RMS
- Output Capacity: 50, 75, 100, 125 kVar (Inductive/Capacitive) scalable to higher capacities as needed
- Frequency: 50/60 Hz (+/- 5%)
- System Configuration: 3P3W & 3P4W (Single phase option available)
- Dynamic Response Time: \leq 10ms
- CT Configuration: Closed loop & Open loop
- Step-less & Bidirectional Correction
- Nil Harmonic Amplification chances
- 50% capacity can be used for harmonic mitigation (2nd to 13th order)



Hybrid Reactive Power Compensation / Harmonic Mitigation Scheme (Passive + Active)

- Hybrid Design: Combination of Active and Passive systems with single controller
- System Voltage: 400V.....690V RMS
- No Harmonic resonance/amplification
- Single hybrid controller with cloud connectivity
- Faster Reaction Time (\leq 5ms)
- HMI Display with Fully functional Power Quality Analyzer with 15 channel Real Time Oscilloscope



Active Harmonic Filter (AHF) - UL/CSA Approved

- System Voltage: 400V.....690V RMS
- Output Current Rating: 30 A to 600 A RMS
- Losses: Less than 2%
- System Configuration: 3 P3W/3P4W (Single phase option available)
- Harmonic Mitigation: Up to 71st order (No limit for number of harmonic selection at a time)
- IGBT based 2-Level / 3-Level Topology for sensor less control
- Adaptive Artificial Neural Network (ANN) based "Ultra-fast Computation"
- Touch screen display with multiple monitoring options, 32-bit DSP technology and can be interfaced with Ethernet/Web Server
- Multimaster Configuration - Flexible parallel operation modes for multi-unit installations
- Simple installation - Free standing, wall mounted



Contactor Switched Automatic PF Correction & Harmonic Filter Capacitor Bank (AHPFC) CPRI Certified

- System Voltage: 400 V.....1000 V
- Design voltage: 525 V.....2000 V
- Rated KVAR: 50 KVAR.....6000 KVAR
- Switching device: Contactors
- Patented design to limit inrush currents to <70 times rated current
- Optimally designed Tuned / Detuned / Tapped Tuned Harmonic Filter Reactors
- Tuned to 3rd, 5th, 7th, 11th or 13th order harmonics
- Harmonic mitigation as per IEEE 519, 2014/CEA, other utilities norms



Real Time Thyristor Switched Automatic PF Correction & Harmonic Filter Capacitor Bank (RTPFC) CPRI Certified

- System Voltage: 400.....1000 V
- Design voltage: 525.....1200 V
- Rated KVAR: 50 KVAR.....6000 KVAR
- Switching device: Thyristor Switching Module (TSM)
- Response time: 20-40 ms
- Harmonic mitigation as per IEEE 519, 2014/CEA, other utilities norms
- Optimally designed Tuned / Detuned / Tapped Tuned Reactors to avoid resonance condition
- Tuned to 3rd, 5th, 7th, 11th or 13th order harmonics
- Zero crossover switching technology with intelligent electronic control synchronous with power
- Smooth, surge less, transient free switching of capacitor
- Front end glass panel door to facilitate easy visual check of TSMs & Capacitor Switching
- Highly reliable and maintenance-free for unlimited switching operations



Medium Voltage Fixed/Automatic PF Improvement Capacitor Bank (Indoor Type)

- System Voltage: 3.3, 6.6.... 33 KV
- Rated KVAR: 450 KVAR.....20 MVAR
- Switching device: Vacuum Contactor / Capacitor Switching
- With Tuned/Detuned/Tapped Tuned Harmonic Filter Reactors
- Tuned to 3rd, 5th, 7th, 11th or 13th order harmonics
- Type tested for 6.6KV and 11 KV



Medium & High Voltage Fixed/Automatic Reactive Power Compensation System (Outdoor type)

- System Voltage: 3.3, 6.6..... 33 KV
- Rated KVAR: 50 KVAR..... 20 MVAR
- Compensation Type: Fixed/Auto
- Mounting Type: Panel mounted, or Structure mounted
- With Tuned/Detuned/Tapped Tuned Harmonic Filter Reactors
- Tuned to 3rd, 5th, 7th, 11th, or 13th order harmonics
- With other associated equipment's like LA, CT, PT, ON / OFF Load Isolators, RVT, Protection Relays, Fuses, etc. as per customer specific requirements



MV & HV Series Reactor for Inrush Current Limiting & Harmonic Mitigation: CPRI/ERDA Certified

- Available in single tap/ multi tap configuration
- Rating KVAR: 50 KVAR.....10 MVAR
- Rated Voltage: 3.3KV.....33KV AC
- Detuning Factor: 0.2% to 14%
- Type – Air/Iron core, Dry/Oil Cooled
- Low loss design with linearity more than 200%
- Dry type, Copper or Aluminium wound
- Applicable standards: As per IS 5553 and IEC 60076-6
- Application: Line end/Neutral end of capacitors for harmonic suppression and inrush current limiting



MV & HV Power Capacitor APP Type (Indoor/Outdoor): CPRI/ERDA Certified

- Rated KVAR: 50 KVAR....700 KVAR per capacitor casing
- Rated Voltage: 3KV....22KV AC (Other voltage on request)
- Frequency: 50/60Hz
- Power loss: <0.2 Watt/KVAR
- Discharge to less than 75V in < 10 min
- Applicable Standards: IS 13925 (Part 1):2012 / IEC 60871-1:2005



LV Self-Healing Type Power Capacitor: (FRAKO Germany Make) BIS/UL/CSA Certified

- Rated KVAR: 1 KVAR.....40 KVAR Heavy Duty Type
- Rated Voltage: 240V....800V AC (Other voltage ratings on request)
- Frequency: 50/60Hz
- Power loss: <0.2 watt/kVAR
- Inrush Current handling : Up to 450 times of rated current
- Over Current Capacity: Up to 2.7 times of rated current
- Patented terminals offer fast, anti-vibration and are maintenance free
- Self-healing, Segmented Film Technology, Over Pressure Disconnecter, Dry Type & Environmental friendly
- Patented Contact rings for solder less end connections
- Applicable Standards: IS 13340 (Part 1):2012 / IEC 60831-1:2002



LV Series Reactor for Inrush Current Limiting & Harmonic Mitigation: ERDA Certified

- Available in single tap/multi tap configuration
- Rated KVAR: 6.25 KVAR....400 KVAR
- Rated Voltage: 230V....1000V AC
- Frequency: 50/60Hz
- Detuning Factor: 0.2% to 14%
- Low loss design with linearity more than 200%
- Dry type, Copper or Aluminum wound
- Applicable standards: As per IS 5553 and IEC 60076-6



Surge Protection Capacitors

- Rating: 0.1, 0.125, 0.25, 0.5 μ F
- Voltage Rating: 3.3KV.....40KV
- Installation Location: Indoor or Outdoor, can be mounted vertically or horizontally
- Mounting Type: Enclosed or Open-air Configuration
- Applicable Standard: IS 11548 (1986) / IEC 60871
- Simple to install and requires no maintenance
- Low-loss, Longer Life, Environmentally Friendly and Leak-free Terminations
- Highly recommended for protection against Turn-to-Turn Insulation of Rotating Machines and other allied Power Generation and Transmission sub station auxiliaries

Dynamic Power Factor Monitoring and Control Relays (FRAKO Germany)



- PQC/PFC-12TR-1 for Contactor/Thyristor switching
- Fully Automatic Microprocessor based and simple commissioning
- Patented control characteristics – No overcompensation during low load
- Intelligent mode of operations to ensure target parameters are controlled and maintained with lowest possible switching cycles
- Measurement monitoring of Harmonics
- Manual/Automatic operation with ability to switch individual capacitor steps ON/OFF
- Flexible programming, improved alarm management

Thyristor Switching Module (TSM)



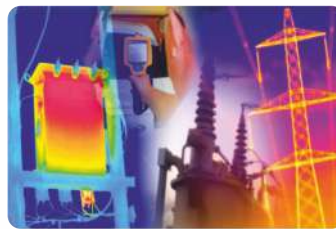
- System Operating Voltage: 300V....1000V AC
- Control Supply Voltage: 12V or 24V DC
- Stage Configuration: 5KVAR.....200KVAR
- Zero crossover switching technology
- Smooth, fast, transient free switching of capacitors
- Highly reliable and maintenance-free for unlimited switching operations
- Inherent isolation characteristics in case of current spikes due to external loads
- Adequately designed heat sinks, thyristor protection circuits and extra safety features to avoid failures



Capacitor Duty Contactor (CLARIANT Make)

- System Voltage: 400V.....690V
- Rated KVAR: 6.25KVAR.....200KVAR
- Safe switching of capacitor stages with or without reactors
- Bounce free switching contacts
- Wear free contact material
- Longest service life and a highest number of switching operations in its category
- Patented design with significant damping on inrush current

Services Offered



- PSCAD/ETAP/Power Quality/Harmonic Analysis Studies
- Electrical Energy & Safety Audits, Load Flow and Arc Flash Study, Thermography Study
- Annual Maintenance Contract
- Healthiness Check-up of Capacitors & Reactors
- Healthiness Check-up of Capacitor Panels & Capacitor Banks

Our Global Presence

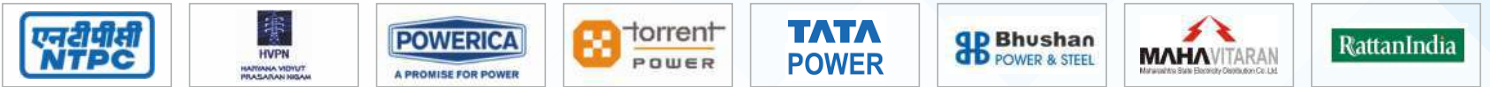


OUR INCREDIBLE CLIENTS

Renewable Energy Sector



Power Distribution/Utility Co.



Oil, Gas & Petroleum Refineries



EPC & OEM



Steel, Rolling Mills, Foundry



Cement



Textiles



Automobiles & Tyre



Pharma, Chemical, Infra



Global Customers



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- East - Kolkata | West - Mumbai | Nagpur | Raipur | Ahmedabad | Kolhapur | Goa | Indore
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