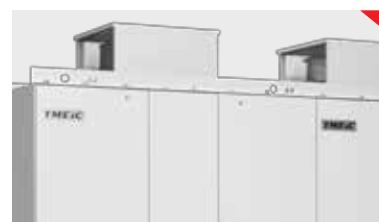


TECHNOLOGY FROM  
**JAPAN**



MADE IN  
**INDIA**

TMEIC is a global leader in electrical and automation technology that enables industrial, commercial and utility customers to enhance their performance while lowering environmental impact.

TMEIC, with its headquarters in Tokyo, Japan, operates around the globe through its subsidiaries & group companies and employs more than 3,500 people worldwide.

## TMEIC CORE TECHNOLOGIES

### Rotating Machines



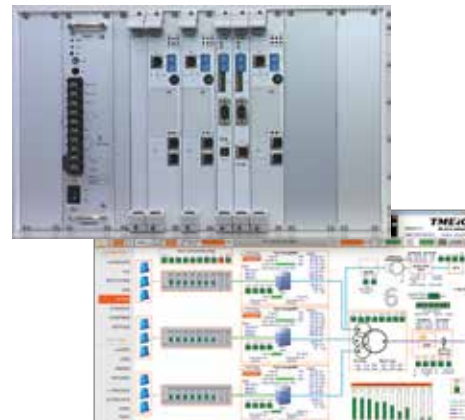
- Induction Motors
- Synchronous Motors
- Permanent Magnet Motors
- Turbine Generators

### Power Electronics



- Variable Frequency Drives
- Uninterruptible Power Supplies
- Solar PV Inverters

### Automation & Control Systems



- Process Controllers
- Mathematical Models
- Diagnostic Systems
- Human Machine Interfaces
- Process Automation Systems
- Productivity Tools & Quality Control Systems



Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC) was established in October 2003 through the integration of Toshiba Corporation's and Mitsubishi Electric Corporation's businesses in the industrial field. The Company has since developed its products, technologies and services highly regarded by customers by maximizing synergies in areas including power electronics, rotating machinery and

system engineering based on the technologies and business foundations handed down by its parent companies. At the same time, the Company has expanded its global reach. I would sincerely like to express TMEIC's appreciation for your guidance and patronage during this time.

The social environment surrounding TMEIC is rapidly changing. However, in order to be a company chosen as a constant business partner through earning customers' trust, we will continue to focus on the development of systems and technologies that will contribute to the environment through realizing our Triple-E (3E) concept, specifically, Energy, Efficiency and Ecology. At the same time, we are

mindful of and fully committed to fulfilling our corporate social responsibility, including a firm adherence to corporate ethics and compliance.

TMEIC's corporate statement "We drive industry" expresses our strong intent for "each and every employee to become the driving force of the industry and society, and in doing so, contribute to further advancement." I would like to request and sincerely appreciate the continued support of all of our stakeholders as the TMEIC Group takes our utmost efforts to further ensure customer satisfaction and moves steadily forward in these endeavors.

**Masahiko Yamawaki**  
President & Chief Executive Officer  
TMEIC Japan



TMEIC India, a 100% subsidiary of TMEIC Japan, was established in 2010 to bring TMEIC's time tested, high quality & globally established technology, products, solutions and value added services to India, for the

benefit of our customers.

TMEIC's significant investments in India to build our state-of-the-art facilities for manufacturing Rotating Machines and Power Electronics products, near Bengaluru, is underlining our commitment to the Indian market and to our esteemed customers.

TMEIC India has always been driven by the mission to be a reliable, innovative, cost effective solution provider and a partner in our customers' success. As a fully

customer centric organization, we at TMEIC India have a passion for quality & excellence to meet and exceed our customer expectations.

We TMEIC, a company of dedicated, passionate, motivated & competent people; pledge by our Vision, Mission and Core Values, our commitment to the customers whom we serve and the society & the environment where we live.

**Hemant Joshi**  
Managing Director, TMEIC India

## OUR VISION

We, TMEIC India, will be the most valued, integrated Electrical and Automation Solutions company in the country. We will drive industry into a new era of next generation technology and solutions enabling performance excellence for every customer.

## OUR MISSION

We will drive customer excellence & success through our innovative, high quality and environment friendly solution, delivered by our committed and motivated team.

## OUR CORE VALUES

### CUSTOMER CENTRIC

We strive to meet and exceed customer expectations with a passion for quality and excellence

### INTEGRITY

We exhibit integrity, our fundamental value, as an individual, as a team and as an organization every time and in every way we conduct business

### PERSONAL COMMITMENT

We are individually and collectively accountable and work together without boundaries, to face challenges and deliver success

# 1896

established  
**TOSHIBA**  
CORPORATION



# 1921

established  
**MITSUBISHI ELECTRIC**  
CORPORATION

ROTATING MACHINES, POWER ELECTRONICS & INDUSTRIAL SYSTEMS

# 2003

established  
**TMEiC**

(TOSHIBA MITSUBISHI ELECTRIC INDUSTRIAL SYSTEMS CORPORATION)

# 2010

established

TMEIC INDUSTRIAL SYSTEMS INDIA PRIVATE LIMITED

TMEIC's strength in Design, Engineering, Manufacturing, Supply, Installation, Commissioning and Servicing of Control & Monitoring Systems, Power Electronic Equipment and Rotating Machinery bring immense values & benefits for our customers globally.



Capital : Japanese Yen 15 Billion

Investment Ratio:

Toshiba **50%**

Mitsubishi-Electric **50%**

President & CEO: Mr. Masahiko Yamawaki

Sales Base:

Sapporo, Toyama, Okayama, Takamatsu, Nagasaki, Tokyo, Nagoya, Hiroshima, Kitakyushu, Chiba, Osaka, Shunan, Fukuoka, Dubai (UAE)

JPY 229 Billion Sales in 2015

Manufacturing Base:

Tokyo (Fuchu), Kobe, Nagasaki, Yokohama (Keihin)

No. of Employees

**3519** (worldwide as of March 31, 2016)

Group Company:

Japan - **1**, Overseas - **18**

# TMEIC INDIA

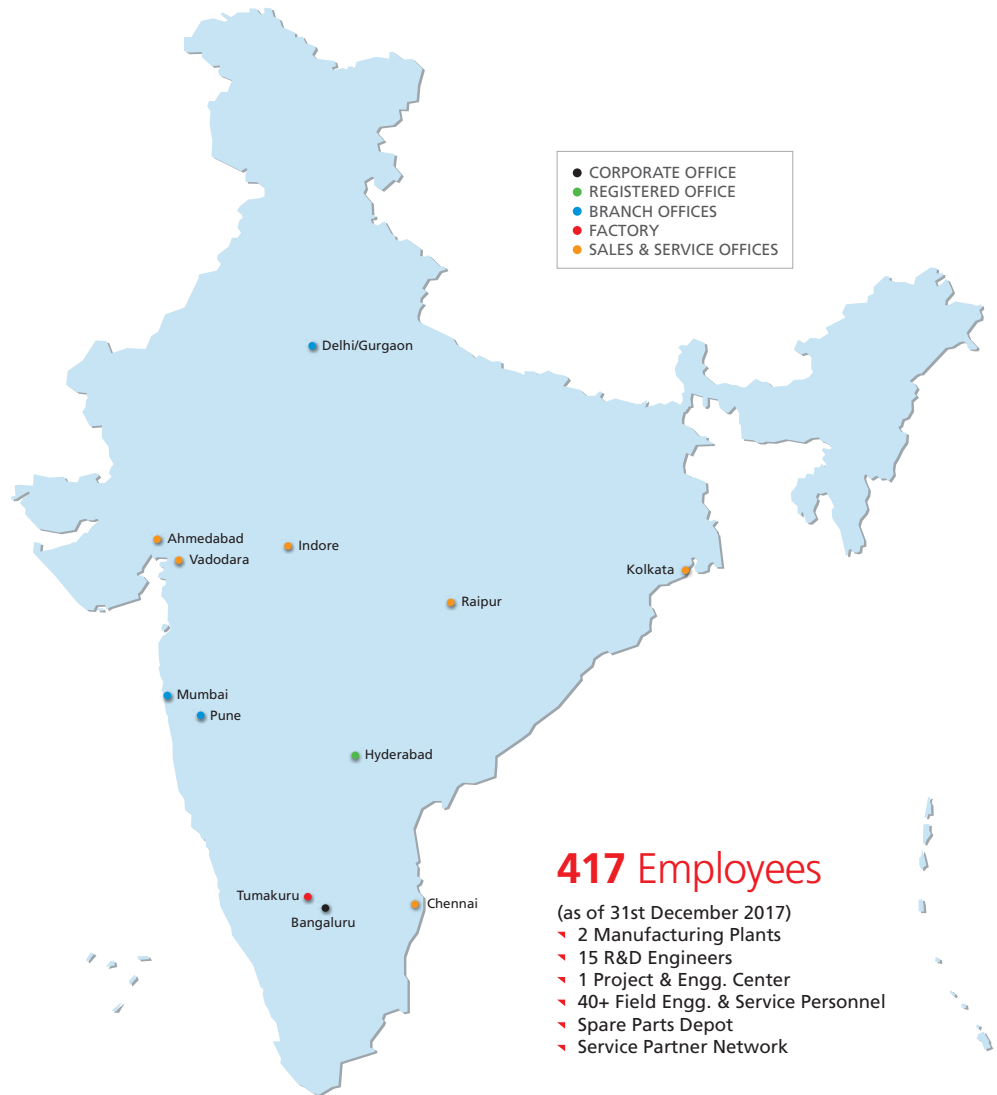
TMEIC Industrial Systems India Private Limited (TMEIC India) was established in 2010 as a 100% owned subsidiary of TMEIC Japan to manufacture various TMEIC range products in India, and also to supply Japanese made products and systems in Indian Market.

Japanese technology is well known for its quality, efficiency and reliability. TMEIC India has established its state-of-the-art manufacturing facilities at Tumakuru near Bengaluru in Karnataka State of India, for manufacturing Rotating Machines and Power Electronics products.

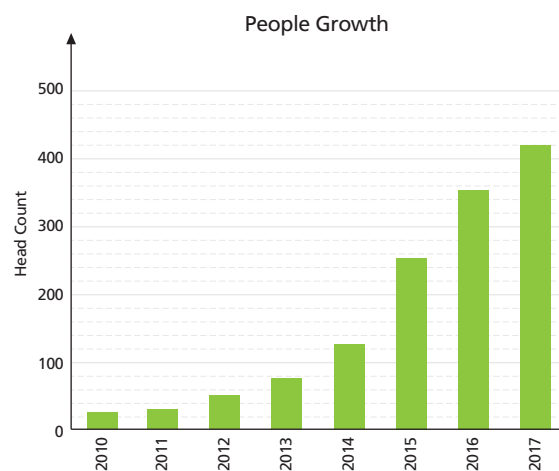
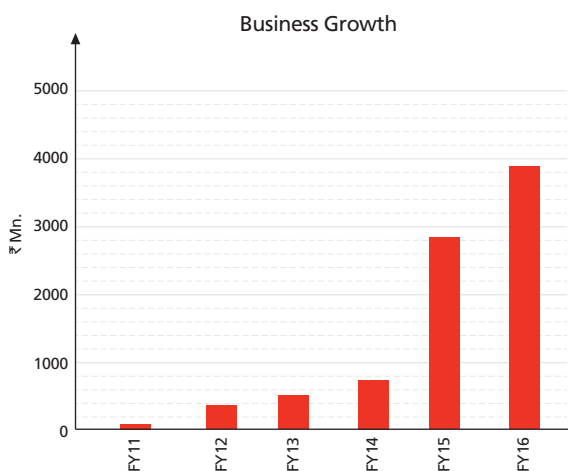
Both the plants manufacture products for the domestic and export markets, in accordance with the design, planning, manufacturing, quality and testing practices followed by TMEIC Japan.

TMEIC India is trained and is fully capable of designing, manufacturing, supplying and providing service support for all our products & solutions manufactured in Indian factories as well as those from other TMEIC factories outside of India.

On the basis of very strong belief in technology, precision and quality of products, TMEIC India has proved its capability of providing the best to the global market.



## YEAR BY YEAR GROWTH OF TMEIC INDIA







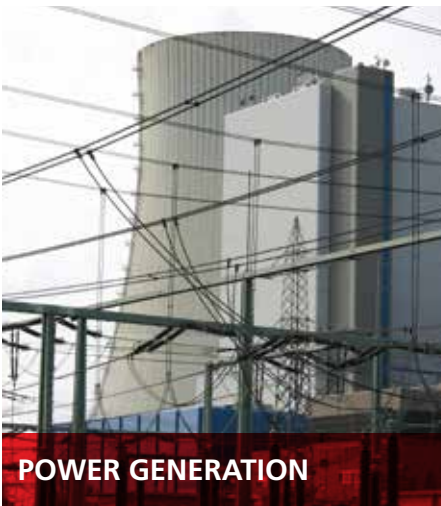
**OIL & GAS**



**METALS**



**RENEWABLE ENERGY**



**POWER GENERATION**

## INDUSTRIES WE SERVE

While we work in a broad range of industries, our team is singularly focused on driving performance and delivering customer success.

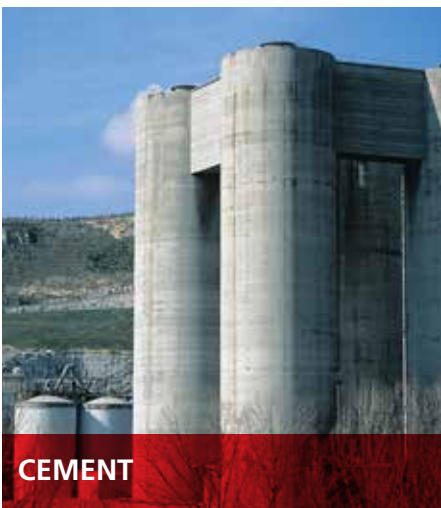
We aim to take our customers to an entirely new level, for the betterment of the people we serve and the world in which we live.

It is an idea that defines our business principles and goes into our heart while we approach each day and every new challenge.

At TMEIC, we drive industry. It is our passion and our never-ending pursuit.



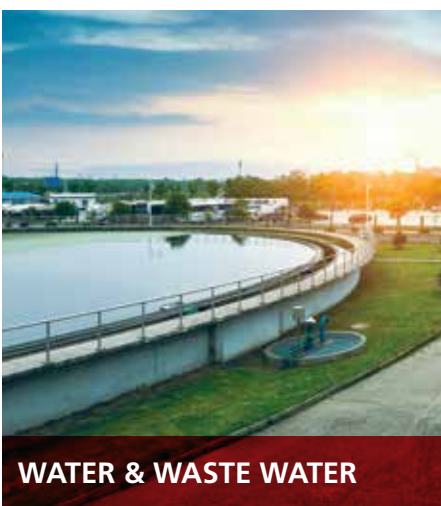
**DATA CENTERS**



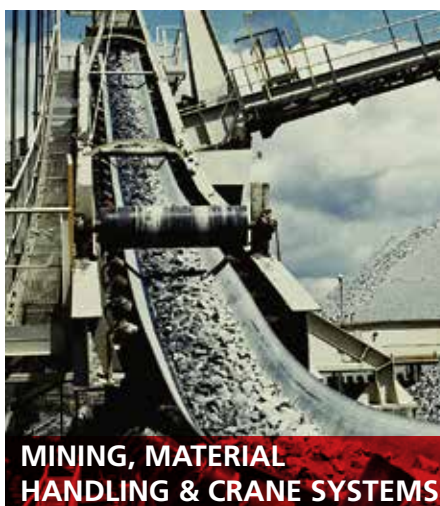
**CEMENT**



**HEALTHCARE, AUTOMOBILE, TELECOM & COMMERCIAL**



**WATER & WASTE WATER**



**MINING, MATERIAL HANDLING & CRANE SYSTEMS**



**PULP & PAPER**

# REDUCING CARBON FOOTPRINT

By developing the ultimate environment-friendly & clean technologies and providing superior products that control electrical energy, TMEIC contributes to environmental conservation and a sustainable society.

Achieving efficiency in manufacturing and leveraging technology to harness new energy is in all that TMEIC does. For the continued forward progression of industry and society, the world requires technologies that harmonize with the global environment. TMEIC works together with its partners around the world to evolve together towards earth-friendly 'green factories' in promotion of energy saving and CO<sub>2</sub> emission reductions.

- ▶ Close to 2500 MW TMEIC Solar PV Inverters installed in India are lighting up more than 3 million village homes and reducing CO<sub>2</sub> emission by about 3.5 million tons p.a.
- ▶ 300+ TMEIC Variable Speed Drives installed in Indian industries, saving more than 1 million units of electric energy every day.
- ▶ TMEIC's highly efficient and reliable UPS helps our customers to have improved uptime for their operations, resulting in higher productivity, while saving substantial amount of energy compared to conventional systems.





# TMEIC ENGINEERING

As a manufacturer of products and systems integrator, TMEIC provides support across the board - from a proposal of solution to post-sales services. While cutting-edge technologies are used to implement innovation in the production process, our accumulated know-how and expertise are applied to create a variety of systems.

We deliver life cycle support services - from the introduction of the most appropriate equipment for the customer, through its maintenance and support, to its eventual modernization in the future.

## Research & Development



## Planning



## Design & Engineering



## Manufacturing



## Construction



## Services



TMEIC's advanced technologies and skills, combined with our service network, provide service solutions and robust support for the stable operation of our products and systems.



# TMEIC VALUE PROPOSITION

## Carefully Crafted

Every equipment is designed and engineered to meet and exceed customer expectation. Every component is selected for highest quality adopting the time tested & proven Japanese qualification standards & practices. Every part is assembled & tested with utmost care and precision in a clean & hygienic environment.



## OUR GOALS



HIGH EFFICIENCY



SATISFIED CUSTOMERS



CLEAN ENVIRONMENT



Above all, dedicated & motivated people make our biggest asset



# EXCELLENCE IN MANUFACTURING

50+ years of Japanese manufacturing experience, now in India

Our world-class manufacturing plants with ISO-9001, ISO-14001 & BS OHSAS-180001 certification at Tumakuru, Karnataka, India (near Bangaluru) has the state-of-the-art design & engineering, production, testing facilities, quality control, SCM capabilities and products that meet Indian and International standards. It has well trained employees having expertise in development of PV inverters, UPS systems and MV motors & drives.

It is our endeavor to bring full capabilities of our Japanese operations to India as we take on the new challenge of building a better tomorrow for India.



Rotating Machines and Power Electronics Factories



Manufacturing Facility in Tumkuru, Karnataka



Unique features of our environment-friendly green buildings



Natural Light in the Shops  
Saving 1240 kW/day



Natural Air Ventilators  
70% of shop



Zero Discharge Facility  
Reuse of waste water  
after treatment



Rain Water Harvesting



Solar Power Generation

0.92 MW inhouse solar power generation meets the factory needs. Achieving CO<sub>2</sub> abatement close to 1220 tons per annum.





# ROTATING MACHINES

Our Rotating Machinery is legendary due to its impressive level of dynamism.

TMEIC's core technologies, from electromagnetic to structure analysis techniques to high level production & quality control process are core to the success of our rotating machines as the most sought after in the world for critical & demanding applications. Each and every piece of rotating machinery produced by TMEIC is an achievement of our production process & quality control expertise that comes from the unique technological strength of TMEIC and the enthusiasm & skill set of our dedicated workforce.

## Squirrel Cage Induction Motors - Made in India



## From Design to Quality Control - All made the TMEIC Way

Motors designed & manufactured in our factory in India, strictly in accordance with TMEIC Japan processes & practices, shall comply to Indian & international standards and bring unmatched value to our customers.

- ▶ IEC Frame Size 315-900
- ▶ Power rating 160-23000kW
- ▶ Voltage Class 380V-11kV
- ▶ Enclosure TEFC / TEAAC / TEWAC
- ▶ Baseefa Certification
- ▶ High power to weight ratio - Smaller footprint
- ▶ Ease of operation & maintenance
- ▶ Rugged construction to suit demanding application
- ▶ Suitable for severe environment & hazardous area
- ▶ Maximum uptime for high return of investment

## Motors & Generators from TMEIC Japan



- ▶ Induction Motors
- ▶ Synchronous Motors
- ▶ Permanent Magnet Motors
- ▶ Turbine Generators
- ▶ Rolling Mill Duty Motors
- ▶ Hazardous Area Motors (Ex-p, Ex-d)
- ▶ Ultra High Speed Motors
- ▶ Low Voltage & Medium Voltage Class

## INDUSTRIES SERVED



Industrial  
Steel, Cement  
Paper, Fertilizers  
Chemical, Mining



Power Utilities



Oil & Gas



Water Utilities



Mining,  
Material Handling

# VARIABLE FREQUENCY DRIVES (VFDs)

TMEIC VFDs are designed keeping in mind the ease of operation & maintenance, smaller foot print, environment friendliness, maximum uptime and highest return of investment for our customers.

## TMdrive Medium Voltage VFDs - Made in India

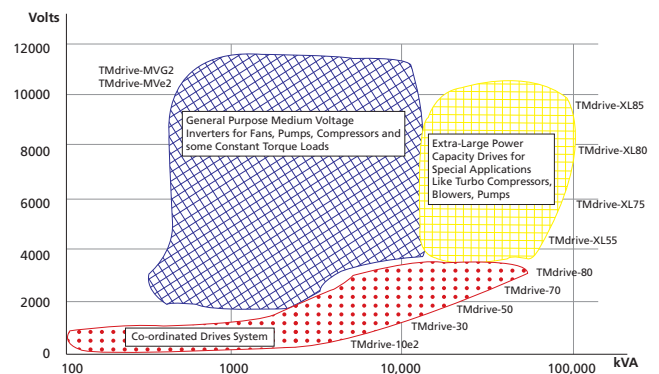
TMdrive-MVe2 & TMdrive-MVG2 are Medium Voltage, Variable Frequency AC Drive System with multi-level near Sine Wave Output are suitable for applications using standard Induction and Synchronous Motors.

- ▶ Power rating 200kVA-19500kVA
- ▶ Voltage class 3.3kV-11kV
- ▶ High Efficiency: 97%
- ▶ Premium power factor: >0.99
- ▶ Harmonics less than 2%
- ▶ Reactive power compensation
- ▶ Regenerative feature - higher energy saving
- ▶ Motor friendly wave form
- ▶ High MTBF means less failures & high uptime
- ▶ Modular construction resulting to low MTTR



**TMdrive-MVe2** is designed with Active Front End IGBT Converter enabling reactive power compensation which helps to maintain near Unity Power Factor at input side even at partial loads. This feature combined with its regenerative capability brings maximum energy saving for any application.

**TMdrive-MVG2**, designed with passive front end Diode Converter, is suitable for large power ratings and offers high efficiency, high reliability and ease of operation.



TMdrives - from 1kVA to 120,000kVA

## VFDs from TMEIC Japan

- ▶ TMdrive-10e2 Low Voltage System Drives
- ▶ TMdrive-70e2 Rolling Mill Duty Medium Voltage Drives
- ▶ TMdrive-XL Large Capacity Medium Voltage Drives - upto 120MVA



## INDUSTRIES SERVED



Industrial  
Steel, Cement  
Paper, Fertilizers  
Chemical, Mining



Power Utilities



Oil & Gas



Water Utilities



Mining,  
Material Handling

# PHOTOVOLTAIC (PV) INVERTERS

TMEIC, world's leading brand in energy efficient, sustainable and reliable, advanced multi-level solar PV inverter technology.

Photovoltaic generation offers a powerful alternative to secure our energy supplies. Photovoltaic generation is clean and ultimate environment-friendly technology since it does not emit CO<sub>2</sub>. TMEIC's SolarWare® Inverters deliver high energy efficiency (98.8%), lower switching losses by 56%, lower equipment footprint and weight thus leading to unparalleled yield on customer investment.

It redefines the PV utility scale solar inverter solution in reliability, efficiency and productivity. TMEIC sets the standard of utility scale installation with its own proprietary and the most advanced multi-level inverter system which brings flat efficiency characteristics providing huge benefit to high DC/AC ratio.



## SPECIAL FEATURES

### Grid Connection Features

TMEIC has long history working with power companies and have developed the grid connection features together. All of TMEIC's utility scale inverters come with the latest interconnection technology enhanced by most skilled engineers and scientists.

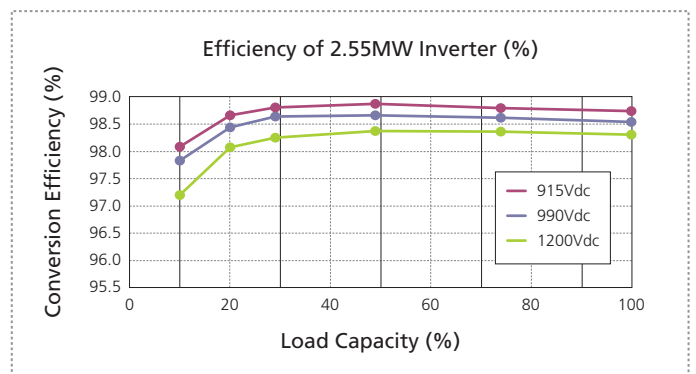
### High Efficiency in this Class

TMEIC's most advanced inverter design allows SolarWare® 750/1000 and SolarWare® 2220/2550 to operate at an amazing maximum efficiency of 98.8%. With high efficiency and the robust design, TMEIC can significantly maximize array performance and uptime.

By developing these core technologies, and by providing the customer with superior products controlling electrical energy, TMEIC contributes to environmental conservation and a sustainable society.



## REWARDS



Max. Efficiency: 98.8%



# UPS SYSTEMS

TMUPS® Series Uninterruptible Power Supply (UPS) design with its patented conversion technology delivers the highest efficiency in the industry to go along with the quality and reliability that users are accustomed to when specifying TMUPS®.

## NEXT-GENERATION UPS SOLUTIONS FOR BUSINESS-CRITICAL LOADS!

High Efficiency  
**>96%**



### Redundant Modular UPSs

**800kVA~1800kVA**

TMUPS® MVA series provides megawatt of power in a single UPS frame. The patented power modules are able to provide superior UPS performance and reliability through advanced patented control of CSTBTs (advanced IGBT). Incorporated with Digital Signal Processor and Direct Digital Control to avail the full benefits of the latest generation CSTBTs, TMUPS® realizes the reduced total cost of ownership and improved PUE over conventional UPS.

#### Features

- ▶ Expandable upto 6 units in parallel to meet the redundancy requirements
- ▶ Compact footprint design delivers more power density per sq.ft. in the industry
- ▶ Multi-level power conversion enhances the lifetime of capacitors to 15 years
- ▶ Most suitable for high density data center applications

### Single Module UPSs

**100kVA~600kVA**

World's first multi-level conversion Uninterruptible Power Supply, TMUPS® is the wise response from TMEIC for the growing demand of high reliability and efficient power solution for mission-critical applications.

Its innovative three-level circuit concept and exclusive power module delivers superior performance and reliability with reduced cost of ownership.

#### Features

- ▶ Expandable upto 8 units in parallel to meet the redundancy requirements
- ▶ Compact footprint design delivers more power density per sq.ft. in the industry
- ▶ Multi-level power conversion enhances the lifetime of capacitors to 15 years
- ▶ Compatible for 100% regenerative loads with bi-directional power converters

## INDUSTRIES SERVED



Industrial



Financial Services



Telecom



Data Centers



Healthcare

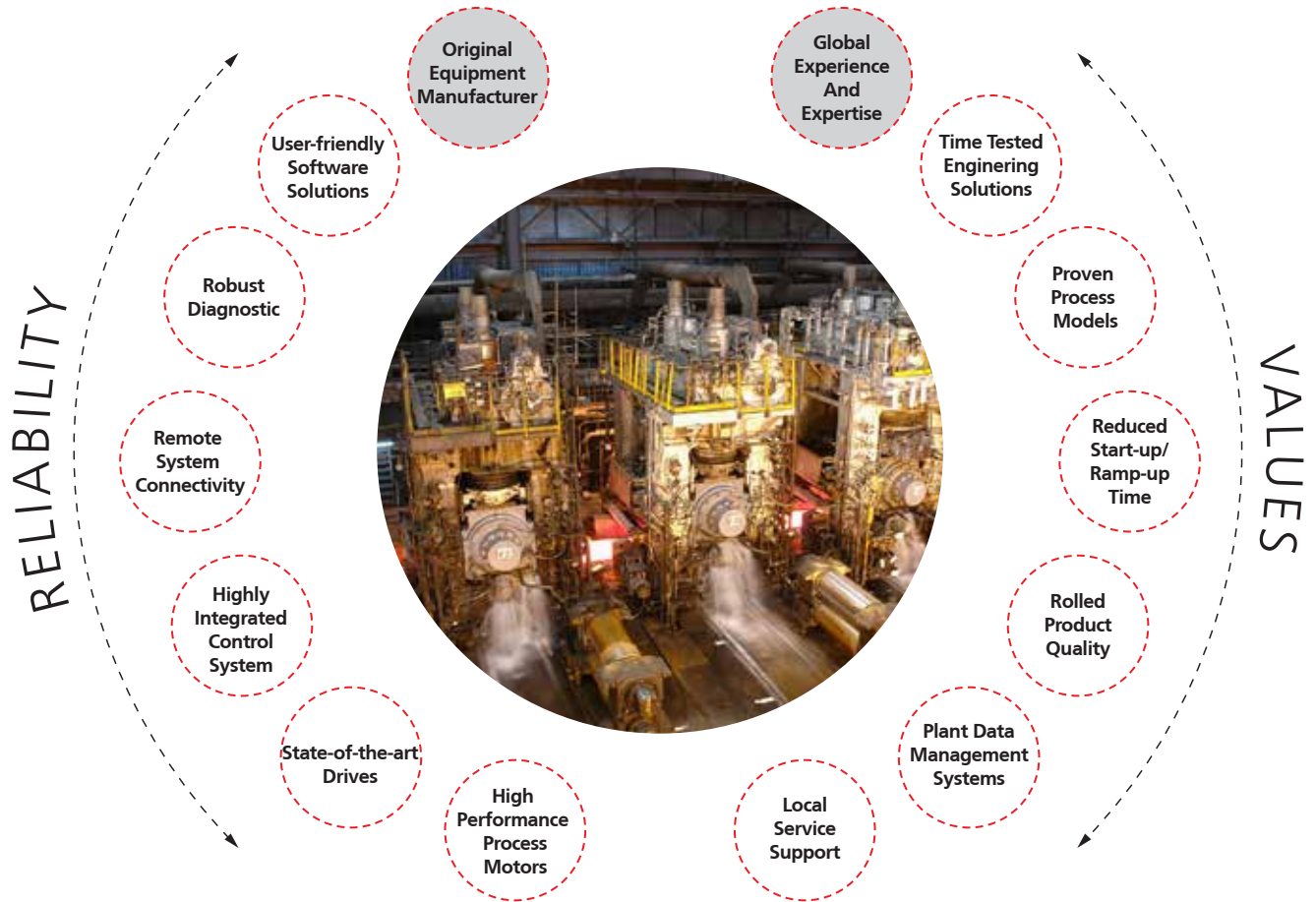


Commercial

*\*For technical details and features of each product, kindly refer the respective Product Catalogues.*

# SOLUTIONS FOR METALS INDUSTRY

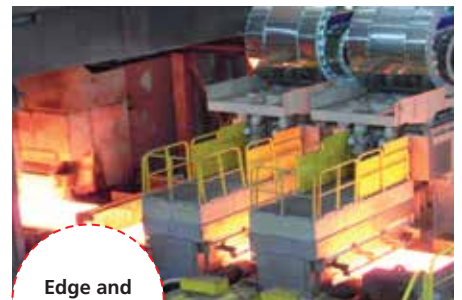
TMEIC delivers state-of-the-art Electrics, Motors, Drives, Automation & Control Systems and Integrated Solutions to enable customers to run their process plants with utmost efficiency and enhance productivity.



**200+**  
Hot Flat Mills



**150+**  
Long Product Mills



Edge and Bar Heaters



**140+**  
Cold Rolling Mills



**720+**  
Processing Lines



Strip Welders

# CRANE CONTROL SYSTEMS

TMEIC's Crane Engineering Team has gained its experience working in the ports with technicians and mechanical suppliers. This engineering background, coupled with state-of-the-art technology, enables TMEIC to consistently meet the demanding requirements of the industry.

The advanced features of the TMEIC MaxView™ Crane Automation System allows operation of the container cranes & the yard at a higher rate, often setting production records. In addition, the increased reliability helps to reduce container and equipment damage.

The MaxView™ vision system, added to the basic MaxSpeed™ crane control system, provides several levels of scalable crane automation from semi-automatic with manual assistance up to fully-automatic, unmanned operation.



- ▼ Electrics
- ▼ Process Performance Motors
- ▼ Variable Frequency Drives
- ▼ Crane Control Systems
- ▼ Visualization Systems
- ▼ Yard Automation
- ▼ Connectivity to Terminal Operation System

160+  
Quay Cranes

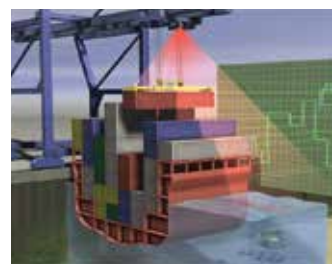
400+  
Automatic  
Stacking Cranes



CMS - TMEIC Crane Management System



Maxview Smart Move™



Maxview Smart Landing®



Maxview Vehicle Guidance™



# TMEIC SERVICE SUPPORT

## Supervision & Commissioning Services

The TMEIC commissioning team includes the field engineers, along with the engineers who designed and tested the system. The team is supported through:

- ▶ Exhaustive factory acceptance test
- ▶ Time saving commissioning and drive tune-up wizards
- ▶ Training and familiarization of the entire team with the system at the factory



This TMEIC approach helps us to minimize changes & modifications at projects sites which in turn enables for quick start-up and faster ramp-up to commercial production.

Comprehensive technical service is provided by our Customer Support Organization, staffed by TMEIC service engineers with factories, offices and spare parts depots across the globe.



24 x 7 x 365  
Support



Spare Parts  
Depots  
Worldwide



300+ Field Engineers  
& Service Personnel  
Worldwide

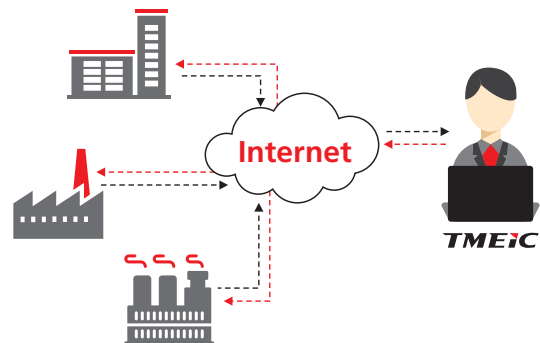


Wide Repair  
Network Through  
Service Partners

## Remote Diagnostics Services

TMEIC's Remote Diagnostic System gives:

- ▶ Direct access to world class support, technical information and software updates for TMEIC's products
- ▶ Offers a quick path to problem resolution with real time remote support
- ▶ Provides steps for resolution for controllers, drives, networks, HMI and other TMEIC's supplied equipment in case of reactive, preventive and predictive needs



## Onsite Service Support

- ▶ Our highly experienced field support engineers work to provide the right combination of preventive and reactive support to meet your technical and financial needs and objectives
- ▶ Over 300 global engineers dispatched from 60+ field offices in 20 countries



## Service Contracts

- ▶ Long term service contract with expert team to ensure fix maintenance cost, without any worry on downtime & production loss
- ▶ TMEIC offers different spare parts & labor contracts to suit customers' technical and operational needs

# TMEIC SERVICE OFFERINGS

## Assessment Services

Identify human and equipment issues that hinder production performance and develop a maintenance strategy that leads to increased machine efficiency, availability, reliability and safety.

Some of the core services under service assessments are:

- ▶ Installed Base Evaluation
- ▶ Control System & Network Analysis
- ▶ Machine Condition Evaluation
- ▶ Equipment Residual Life Analysis
- ▶ Energy Audits
- ▶ Power System Analysis



## Revamps, Upgrades, Modernization

When it's time to revamp, upgrade, modernize or replace the existing drives, motors and control systems, TMEIC has the technology and project engineering team to assure a smooth migration path.

TMEIC's vast global experience in modernizing equipment & process plants across the world combined with our competent field engineering team ensure step by step implementation to success with minimum interruption to the production operations of the running plant.



## Training

TMEIC offers a variety of training opportunities, including specialized customer training at our facility, on-site training at the plant, as well as customized Engineering Schools.

### Class Room Training

Our training facility features large classrooms and fully-equipped training labs for our customers. Training consists of 50% class time and 50% hands-on lab time.

### Customized Training at the Plant

As an alternative to the standard class room training, TMEIC offers a course tailored to your project and held at your location.





## TMEIC Industrial Systems India Private Limited

### Corporate Office:

The Millenia, Tower A, 10th Floor, #1 & 2, Murphy Road,  
Halasuru, Bengaluru 560 008. India.  
Tel.: +91-80-6751-5599, Fax: +91-80-6751-5500

### Registered Office:

Unit #03-01, Third Floor, Block 2, Cyber Pearl, HITEC City,  
Madhapur, Hyderabad 500 081. India.  
Tel.: +91-40-4434-0000, Fax: +91-40-4434-0034

### Branch Offices:

#### MUMBAI:

901 / D, Filix, LBS Road,  
Bhandup (W),  
Mumbai 400 078. India.  
Tel.: +91-22-6155-5444  
Fax: +91-22-6155-5423

#### PUNE:

412-413, Fourth Floor,  
Ganga Osian Square, Wakad,  
Pune 411 057. India.  
Tel.: +91-20-6790-5700

#### DELHI / GURGAON:

Unit #105, First Floor,  
Tower A, Park Centra, Sector 30,  
Gurgaon 122 003. India.  
Tel.: +91-124-403-4966  
Fax: +91-124-403-4966 Ext. 115

### Manufacturing Site:

#### TUMAKURU:

Plot #316, Vasanthnarsapura Industrial Area,  
Phase 2, Yaladadlu Village, Kora Hobli,  
Tumakuru District - 572128. India.  
Tel.: +91-816-229-4040  
Fax: +91-816-229-4069

### Enquiry:

Motors, Drives: MVDivesMotors@tmeic.in  
Metals / MH Systems: MVDivesMotors@tmeic.in  
Solar PV Inverters: pv@tmeic.in  
UPS: tmups@tmeic.in



24 x 7 x 365  
Customer Service Support: +91-40-4434-0123  
E-mail: support.india@tmeic.in