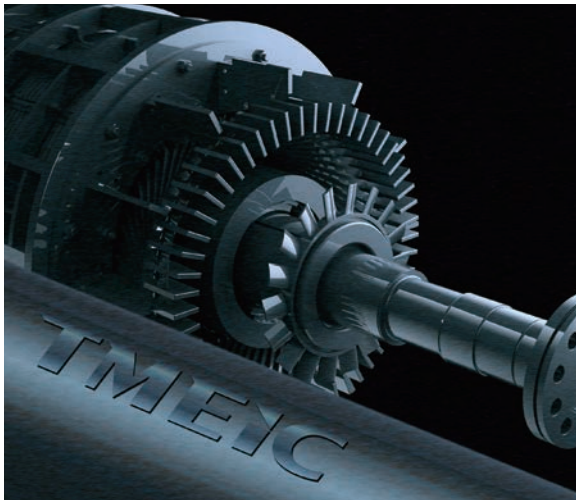
TMEIC
We drive industry

Motors & Generators

Empowering the Future



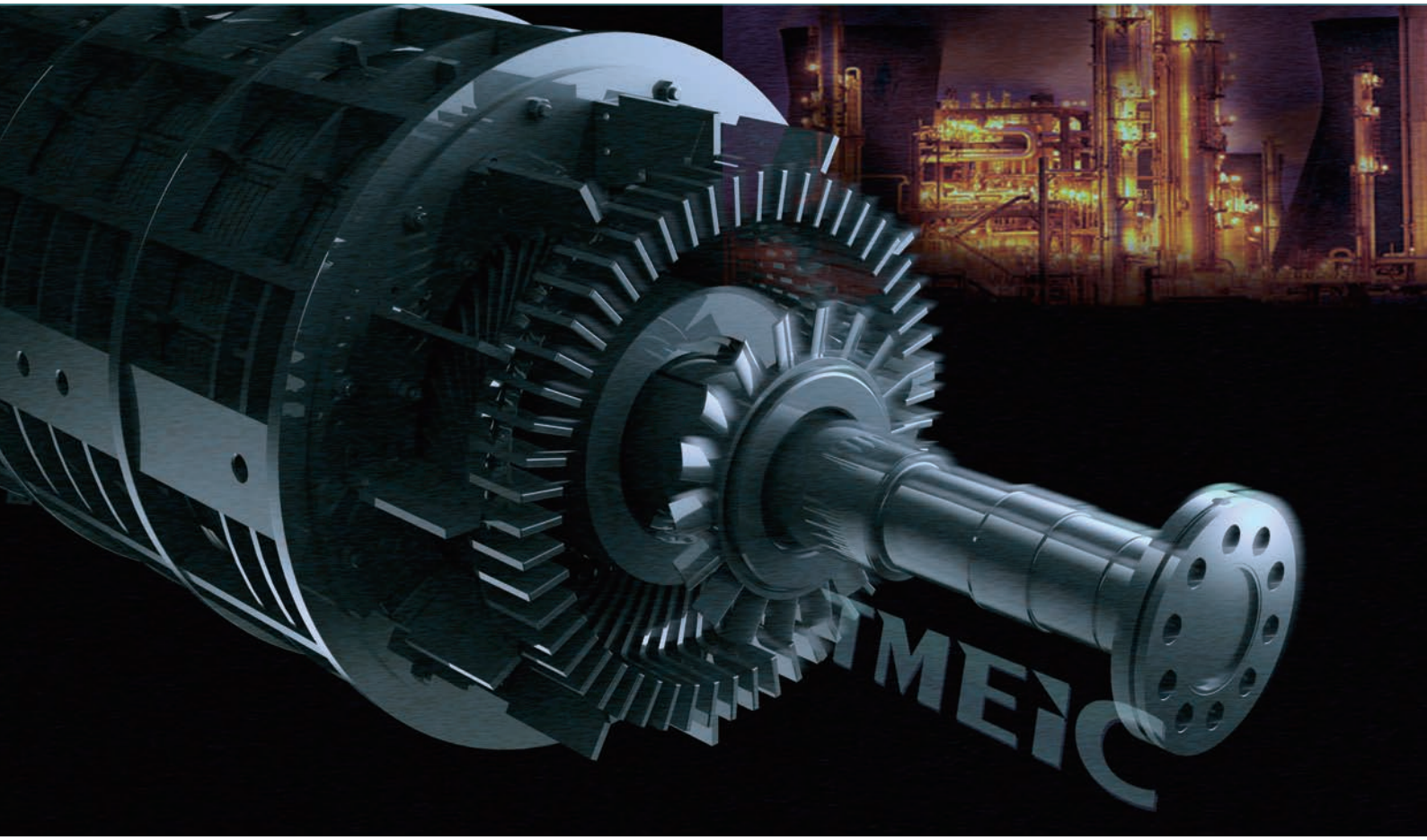
TMEIC Corporation

Combining Over 200 Years of Experience & Expertise In the Manufacture of Products that Drive Industry

TMEIC Corporation (TMEIC) stands proud as a key player in ensuring the continuous operation of industrial manufacturing around the world. Our large-capacity, high-speed motors and generators are found at the core of production facilities driving equipment and systems in a diverse array of fields such as metals, paper, chemicals, oil and gas, materials handling and mining.

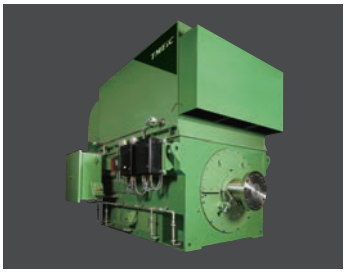
Combining the industrial production experience of parent companies Toshiba and Mitsubishi Electric, TMEIC products are developed based on more than 200 years of expertise, leading to the manufacture of highly reliable products that receive excellent customer evaluations for their superior quality, durability, low maintenance and long service life.

We produce motors and generators that provide best-match solutions for diverse applications in industrial facilities and power generation plants, and are confident that when it comes to products you must rely on, you'll be glad you chose TMEIC.



Superior Quality, Durability and Reliability Supporting Industries around the World

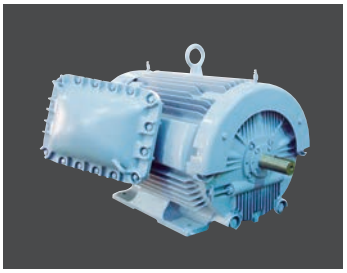
Oil & Gas



Ultrahigh-speed, large capacities and flexibility

A long history of reliability and the flexibility to adapt to diverse machinery layouts continue to attract customer praise. As a leading manufacturer, TMEIC proposes optimal drive and motor products, including specially designed ultrahigh-speed motors, and generators.

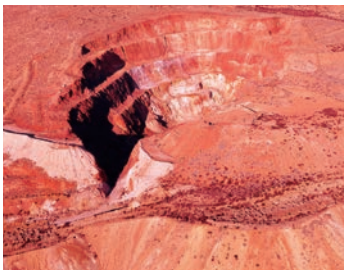
Chemicals



Highly reliable, explosion-proof with minimal maintenance requirements

Explosion-proof motors compliant with IEC/ATEX global standards and designed for use in petroleum refineries and petrochemical facilities. Safe and reliable operation is guaranteed, even in potentially dangerous areas where explosive gases could be present.

Mining



Excellent durability under harsh operating conditions

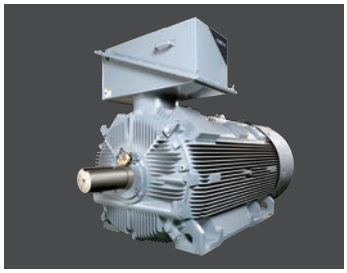
Motors for mining machinery like grinding mills, mine hoists and conveyors, all with proven durability in harsh operating environments. Whether a large-capacity motor, overhung installation or a motor/variable-frequency drive combination, TMEIC has a best-match product for you.

Metals

Robust operation in severe environments

Motors designed to withstand heat, steam, dust and other particulates, as well as impact force when operating in severe environments. When it comes to supplying reliable products and flexible solutions, TMEIC has an excellent record of customer satisfaction.

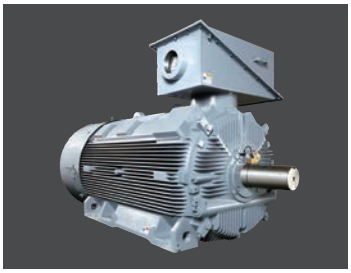
Paper



Compact in size with high-precision control

Compact, highly efficient motors compliant with international standards. Fin frame sizes up to 560 enable use where installation space is limited, while easy grease removal and bearing maintenance contribute to a long service life.

Materials Handling

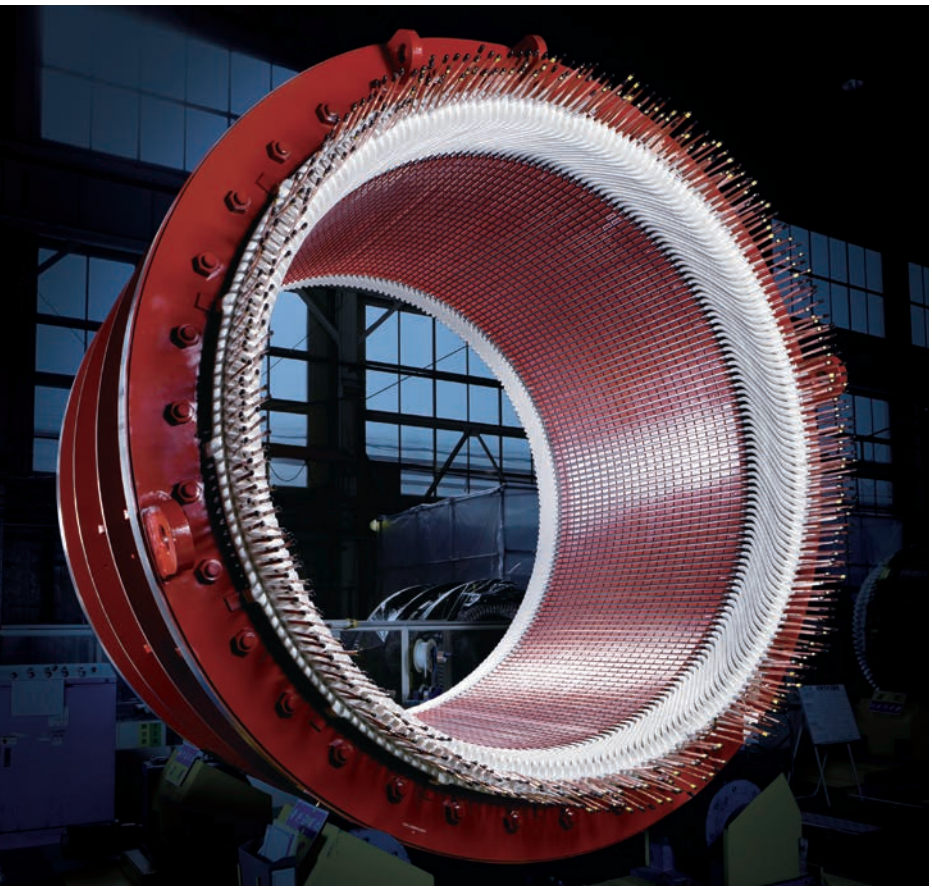


Vibration resistant and low heat generation

Compact, durable motors designed for long-term use in diversified operating environments such as high altitudes and narrow, confined spaces. Characteristic features include high resistance to vibration, low heat generation when running and easy bearing maintenance, all of which contribute to a long service life.

Features	Benefits
High Reliability resulting from use of proven design technology, manufacturing expertise, wide use of robotics, tight quality control, and testing	Many years of excellent trouble-free service under difficult working conditions
High Efficiency resulting from detailed analysis of the electromagnetic field patterns and ventilating air flows	Low electrical losses and high power conversion
High Strength Insulation through the use of robotic insulation winding and use of an oversized epoxy resin vacuum impregnation tank for creating strong support and insulation	Withstands surge and minimizes electrical shorts and winding failure
High Mechanical Strength through use of static and dynamic strength analysis of stator frame, rotor, shaft and bearings. Motor shafts are made of forged steel with high tensile strength.	Minimizes mechanical deflection and vibration

Optimum Productivity



Highly Reliable

24hr Nonstop Operation

TMEIC products are insulated using strict procedures and materials of the highest quality; features that contribute to stable, nonstop operation and a long service life. Advanced production, delivery and installation knowledge greatly shorten the start-up time for commissioning a system, minimizing the risk of delays, improving productivity and promoting trouble-free operation.

Hands-on Approach

Installation & Commissioning

TMEIC supplies motors and generators globally using some of the most advanced processes in the industry. The service network ensures efficient installation and commissioning of products, bringing direct benefits to customers by minimizing start-up time, and the risk of downtime and lost productivity. Sophisticated verification is utilized for onsite measurements when conducting machinery replacement.

Superior Insulation

Long Service Life

TMEIC motors and generators feature insulation quality second to none, a key factor for ensuring a long and reliable service life. Eliminating the need to frequently update or repair equipment helps to reduce costs and enables smoother, more efficient operations; features that contribute to maintaining the highest level of productivity.

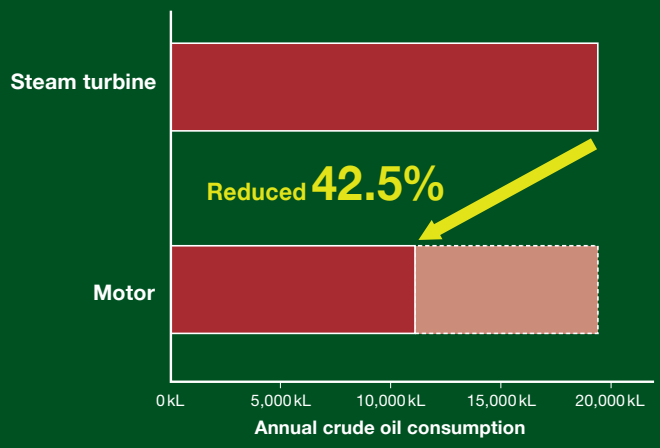
Ever Higher Efficiency

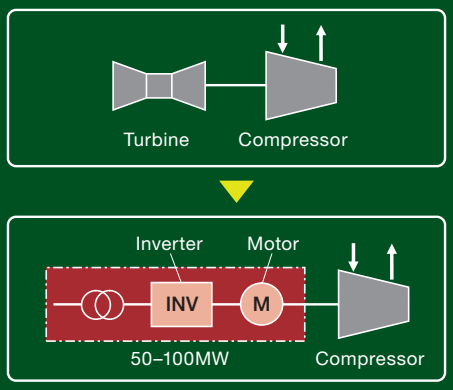
Minimal Operation Costs

Optimal Cost Performance

TMEIC is continuously working to enhance product efficiency. Benefits of improvements are passed on to the customer in the form of enabling the simultaneous achievement of higher productivity and lower operating costs when using ultrahigh-speed motors. Efforts are applied considering how to lower costs over the entire lifecycle of a product, thereby realizing optimal cost performance and maximum return on investment.

Steam Turbine/Motor Energy-savings Comparison





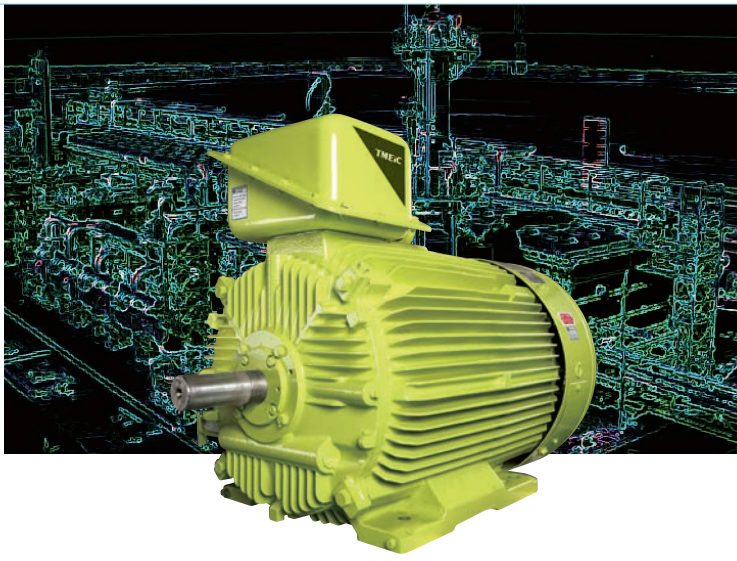
✻ Compressor drive changed from a condensing steam turbine operating at 34t/hr to a motor and inverter.

Energy-saving effect Energy savings: 8,200kL/year (51,572.3 bbl) (savings of approx. **US$6 million/yr**)
CO_2 emissions: Reduction of approx. **22,000t/yr**

High-efficiency motors compliant with

IEC standards

The International Electrotechincal Commission (IEC) sets the standards for motor system efficiency around the world from the perspectives of energy efficiency and CO_2 emissions. Standards IEC60034-30 and IEC60034-31, published by the IEC, define the new efficiency classes for motors. TMEIC has a full line-up of IE3 motors that contribute to reducing CO_2 and have minimal negative effect on the environment.

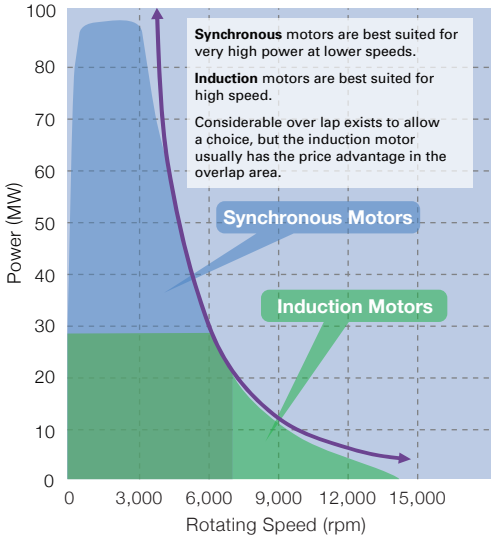


Uses/Results/Sustainability

Oil & Gas

State-of-the-art Large-capacity, High-speed Solutions

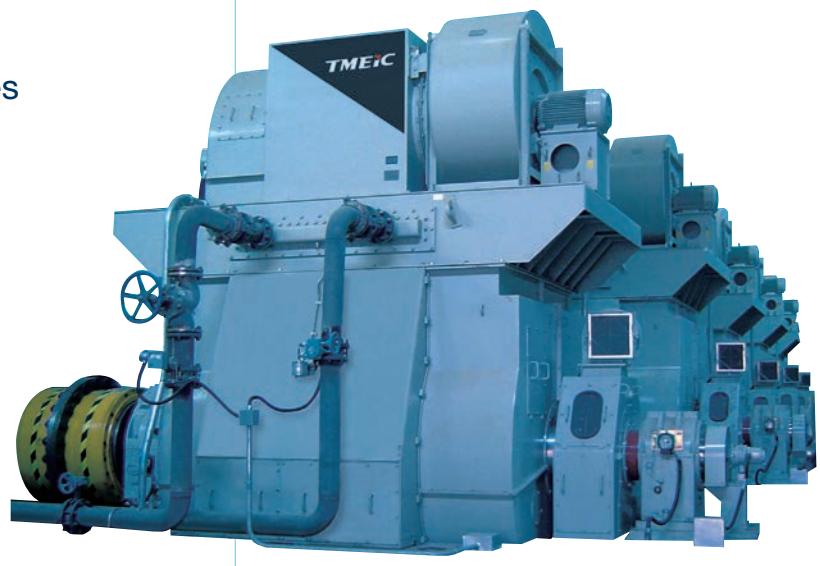
Large capacity and high speed are the main qualities of TMEIC motors used in the oil and gas industries. These products provide improved performance while simultaneously requiring less maintenance as a result of being designed with fewer mechanical parts. More efficient operation is achieved as well. By replacing gas turbines with motors that drive compressors directly, the need for gears has been eliminated. This contributes to reducing initial cost and the overall size of the system, thereby saving space. Extremely reliable and easy to maintain, our motors offer the benefits of optimal productivity and trouble-free, low-cost plant operation.



Metals

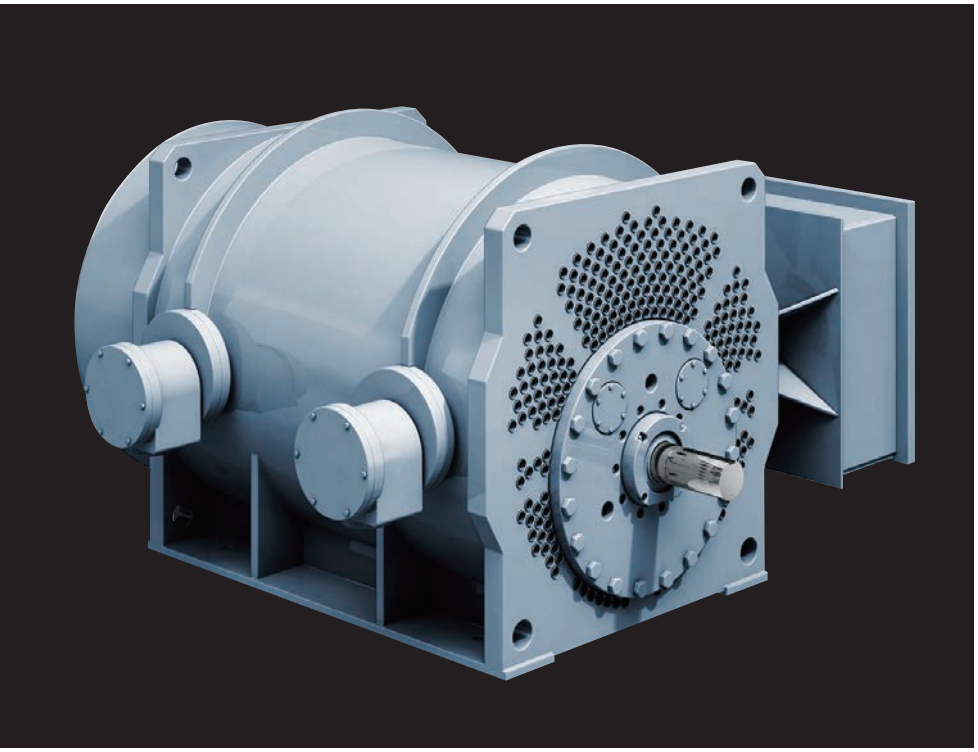
Over 100 Satisfied Metals Industry Customers in More than 30 Countries

TMEIC provides motors of up to 17,000kW for applications in the metals industry, as well as system solutions services that contribute to optimizing overall productivity. An excellent example is our line-up of tough and robust main motors developed for use in the severe environment of hot rolling mill production lines. Customer evaluations continue to be high, and to date we have delivered over 500 medium-voltage motors to over 100 satisfied customers in more than 30 countries.



Pursuing Ever-higher Output

Unprecedented Large-capacity Motors



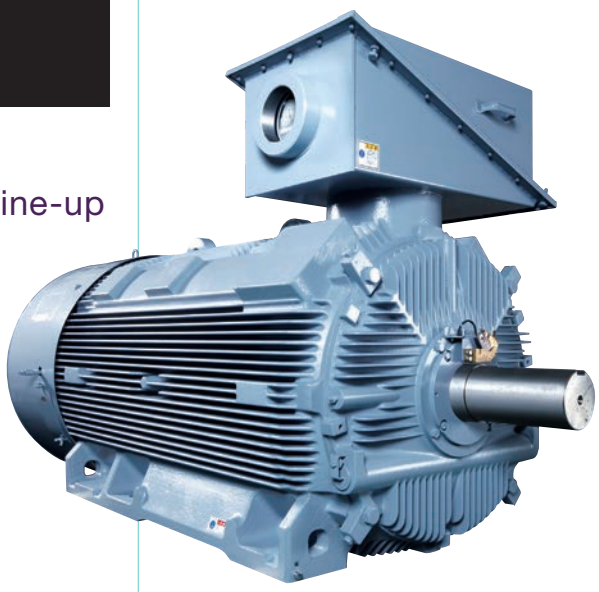
Large-capacity Ex db Motor Line-up

Frame sizes up to 630.

In addition to a wide range of explosion protected motors, TMEIC now produces large-capacity Ex db (flameproof) motors in sizes up to 630 frames, expanding the company's contribution to plant operations in potentially explosive atmospheres. These motors reduce initial costs as there is no need for peripheral equipment and maintenance is simple, ensuring added customer convenience.

Large-capacity Fin Frame Motor Line-up

Building on a vast line-up of medium-capacity fin frame motors that have contributed greatly to customers' operations, TMEIC has introduced a new line of large-capacity motors that offer enhanced customer benefits, such as lower running cost and increased space savings.



Global Standards

TMEIC motors and generators are compliant with all global standards and backed by a worldwide service network ready to support customer needs. Quality, reliability and safety, the concepts on which TMEIC products are built, are the same concepts global standards are based on. The end result is benefits for both customers and the environment. Our motors have received hazardous area certification in most regions around the world.

TMEIC
We drive industry

Global Protection and Certification

	Europe	Russia	China	Korea	Australia	India	USA	Canada	Brazil	Others
Standard	EN & ATEX	IEC	GB	IEC	IEC	IEC or EN & ATEX	NEC & ISA	CSA	ABNT & IEC	IEC or EN & ATEX
Certification Body	SGS Baseefa	Nanio CCVE	CQST or NEPST	KOSHA or KGS	SGS Baseefa	CCOE	FM or SGS NA	CSA	NCC or LMP	SGS Baseefa

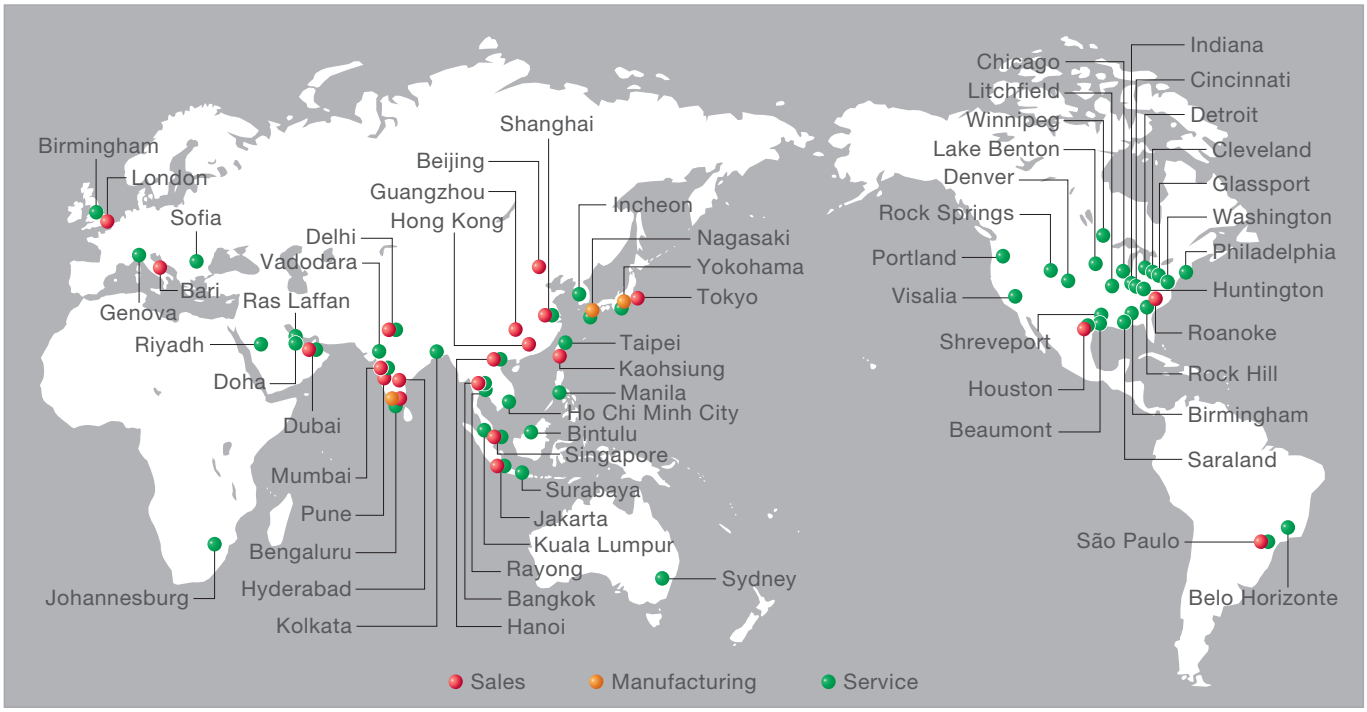
From Small to Multi-megawatt Capacities...

Product	Induction Motors						
	IP55/ IC411, IC416 TEFC	IP55/IC37 TEFV	IP55/IC410 TENV	IP22/IC01, IC06 IP24W/IC01, IC06 DP, WP	IP55/ IC511, IC516 TEAAC	IP55/ IC611, IC616 TEAAC	
Typical View							
Power	37 - 2,300 kW (50 - 3,080hp)	44 - 370 kW (59 - 490 hp)	25 - 147 kW (34 - 197 hp)	Up to 25,000 kW (33,500 hp)	Up to 2,000 kW (2,680 hp)	Up to 17,000 kW (22,700 hp)	
Speed	Up to 3,600 rpm	Up to 1,300 rpm	Up to 1,200 rpm	Up to 3,600 rpm	Up to 3,600 rpm	Up to 3,600 rpm	
Voltage	Up to 6.9 kV	Up to 690 V	Up to 690 V	Up to 13.8 kV	Up to 13.8 kV	Up to 13.8 kV	
Frame	250 - 630	806 - 818 (DC motor dimension)	250 - 400	315 - 1,200	630	315 - 1,200	
Applicable types of protection	Ex ec, Ex eb, Ex db	—	—	—	Ex db	Ex ec, Ex eb, Ex p	
Rotor construction	Aluminum cast rotor or Copper bar rotor	Aluminum cast rotor or Copper bar rotor	Aluminum cast rotor or Copper bar rotor	Aluminum cast rotor or Copper bar rotor	Copper bar rotor	Aluminum cast rotor or Copper bar rotor	
Typical Applications	Fans, Pumps, Blowers, Compressors, Conveyors	Metal rolling mills	Metal rolling mills (Roller tables)	Fans, Pumps, Blowers, Compressors, Mills	Fans, Blowers, Compressors	Fans, Pumps, Blowers, Compressors, Mills	

Motors & Generators for Diverse Needs

	Induction Motors			Synchronous Motors		Permanent Magnet Motors	Synchronous Generators
	IP55/ IC81W, IC86W TEWAC	Vertical	Ultra High Speed		Ultra High Speed		
							
	Up to 25,000 kW (33,500 hp)	Up to 6,500 kW (8,700 hp)	Up to 15,000 kW (20,100 hp)	Up to 100 MW (134,000 hp)	Up to 80,000 kW (107,240 hp)	75 - 300 kW (100 - 400 hp)	Up to 100 MVA
	Up to 3,600 rpm	Up to 1,800 rpm	Up to 12,000 rpm	Up to 3,600 rpm	Up to 6,500 rpm	Up to 1,800 rpm	Up to 3,600 rpm
	Up to 13.8 kV	Up to 13.8 kV	Up to 13.8 kV	Up to 13.8 kV	Up to 13.8 kV	Up to 690 V	Up to 13.8 kV
	315 - 1,200	Up to 3,300mm ✻ Mounting pitch diameter	Up to 900	—	—	250 - 280	—
	Ex ec, Ex eb, Ex p	Ex ec, Ex eb, Ex p	Ex ec, Ex p	Ex ec, Ex p	Ex p	—	Ex p
	Aluminum cast rotor or Copper bar rotor	Aluminum cast rotor or Copper bar rotor	Copper bar rotor	Cylindrical rotor or Salient rotor	Cylindrical rotor	Permanent magnet rotor	Cylindrical rotor or Salient rotor
	Fans, Pumps, Blowers, Compressors, Mills, Mixers	Pumps, Metal rolling mills	Gearless turbo compressors	Metal rolling mills, Compressors, Blowers, Mixers	Gearless turbo compressors	Fans, Pumps, Blowers, Compressors, Conveyors	Steam turbines, Gas turbines

Global Sales/Manufacturing/Service Network



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