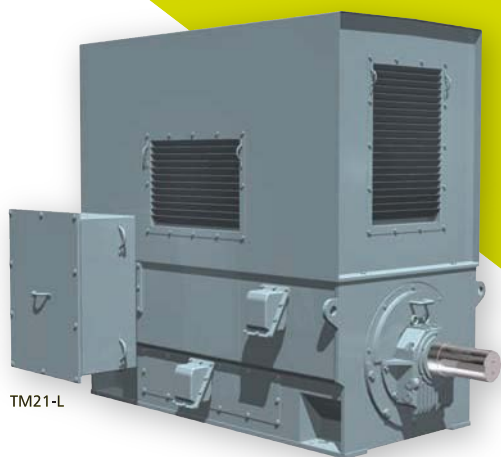


## Squirrel Cage Three Phase Induction Motors

# 21 Series

Frame Size 250 and over  
Capacity 37kW~20000kW  
(50HP~26800HP)



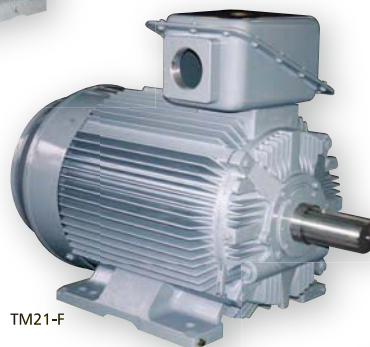
TM21-L



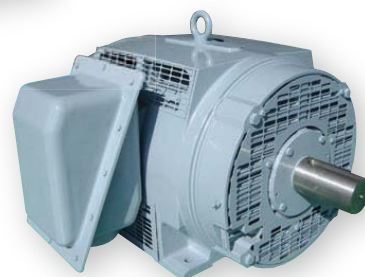
TM21-M



TM21-VLL



TM21-F



TM21-D

**Evolution  
Type**

# 21 Series

After great success with **21** Series we are proud to announce the birth of **SERIES** . Advances in technology and the voices of our many customers (VOC) around the world have enabled us to design and build our enhanced series motors. Our customers have frequently requested to focus on application requirements, high quality, low cost, and high performance. All of these factors have brought the new **21** Series Motors.

**High  
Reliability**

**Energy  
Saving**

**High  
Efficiency**

**Meet  
International  
Standards**

**Excellent  
Data Service**

**Easy  
Maintenance**

**After-sales  
Service**

# Lower life cycle cost and products improvements



## Features

### ***Meet International Standards***

Meet the following standards

IEC

NEMA

BS

AS

CSA

API

### ***High Efficiency Machine Utilized CAE Technique***

CAE technique has been applied to analyze heat transfer, flux density distribution of the core, cooling characteristics and deformation of stator coil end which are the most important items of motors. These factors realize high efficiency machines.

### ***High Insulation Technique***

- Evolution of insulation materials and manufacturing techniques have realized longer life.
- Surge capability for inverter drive applications.

### ***Full Data Service***

Performance data, drawings and technical particulars are provided in electronic format.

### ***High Quality and Reliability***

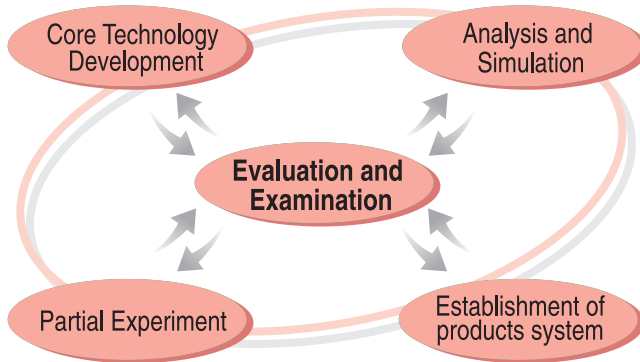
Improvements of **21**Series are based on the experiences gathered for the **21**Series in field operation and VOC. Highly reliable insulation system, low vibration, the most suitable bearing selection and standardization of components.

### ***Easy Maintenances and After-sales Services***

- L10 life of rolling bearing is 100,000 hours, and the regreasing interval is also extended.
- World wide standard sleeve bearing is used.
- After sales service is available through us.



**21**Series is pursuing more high reliability based on various kinds of experiences, fundamental techniques of **21** Series, and CAE analysis technique.



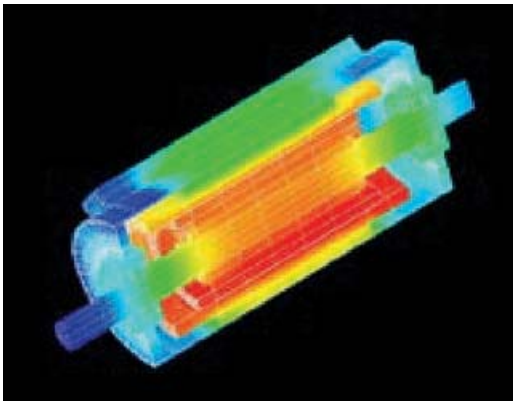
### ● Insulation Technology

Development of high reliable insulation system

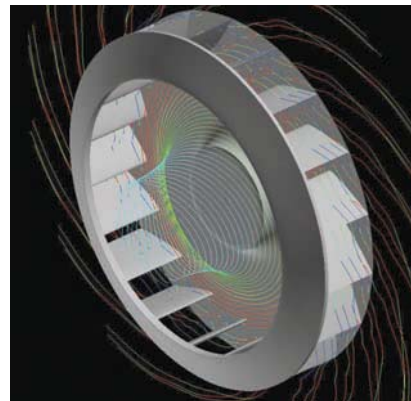


### ● Analysis Technology

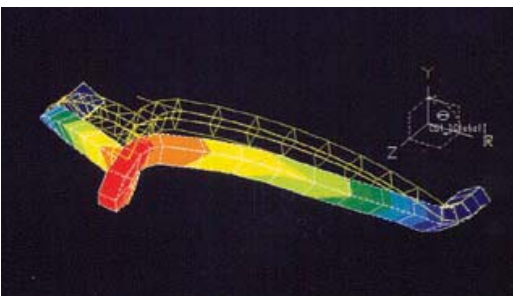
Three dimensional analysis of heat transfer



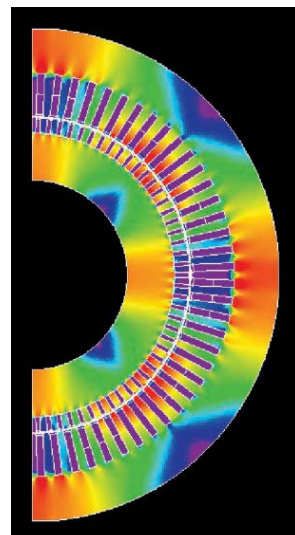
Cooling characteristic analysis



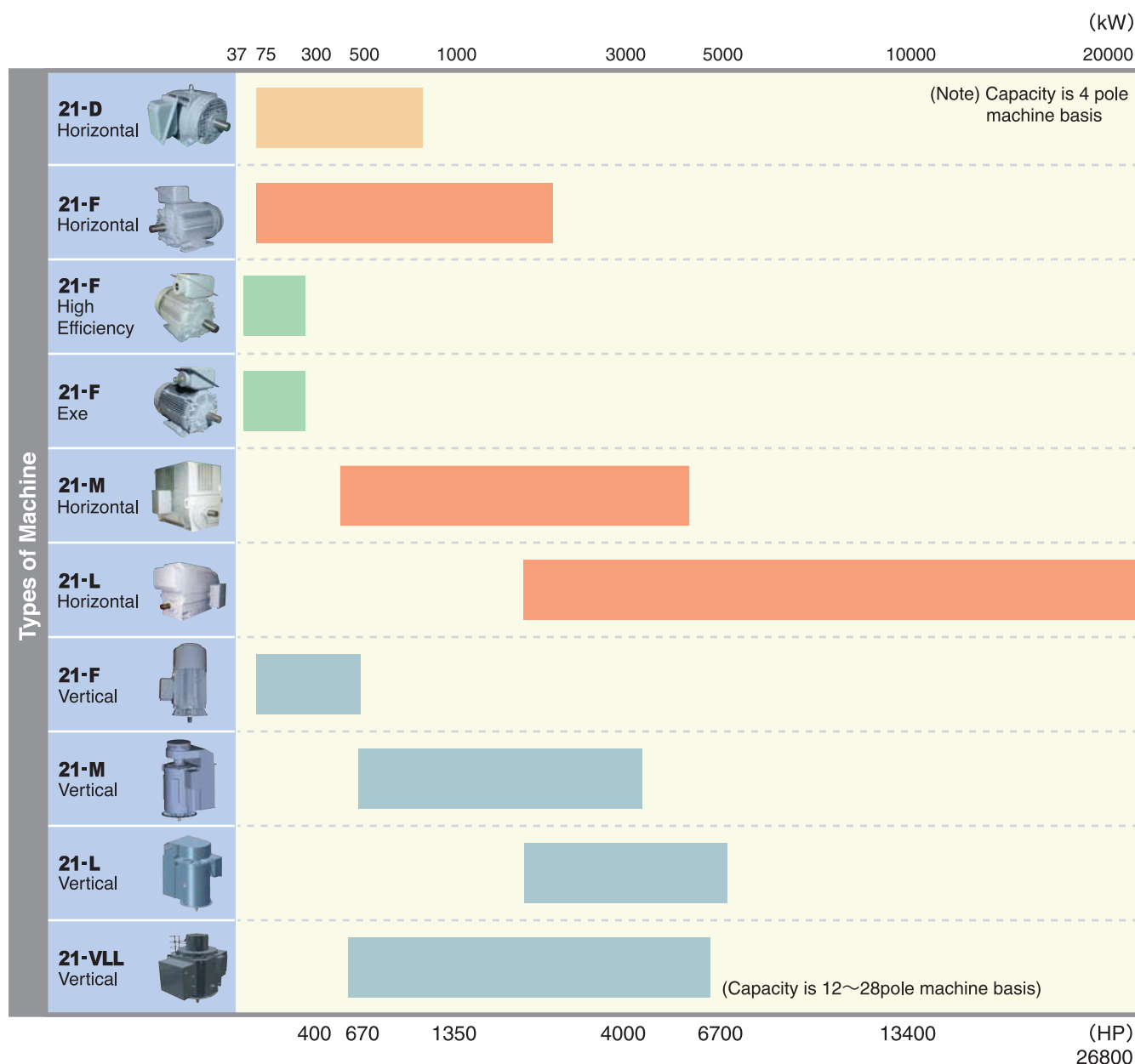
Deformation analysis of stator coil end



Electromagnetic analysis



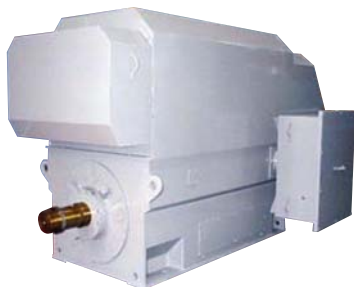
## 21 Series Line up



Types			Definition	Frame Size
Horizontal	Open Drip	<b>21-D</b>	ODP	250~355
	Totally Enclosed Fan Cooled	<b>21-F</b>	TEFC	250~500
	Totally Enclosed Fan Cooled High-Efficiency Series			250~280
	Increased Safety Explosion Exe			250~500
	Drip Proof	<b>21-M &amp; 21-L</b>	DP	315~900
	Open Drip Weather Protected		WP	
	Totally Enclosed Air to Air Cooled		TEAAC	
	Totally Enclosed Water to Air Cooled		TEWAC	
Vertical	Totally Enclosed Fan Cooled	<b>21-F</b>	TEFC	250~315
	Drip Proof	<b>21-M &amp; 21-L</b>	DP	355~630
	Open Drip Weather Protected		WP	
	Totally Enclosed Air to Air Cooled		TEAAC	
	Totally Enclosed Water to Air Cooled		TEWAC	
		<b>21-VLL</b>		710~1400

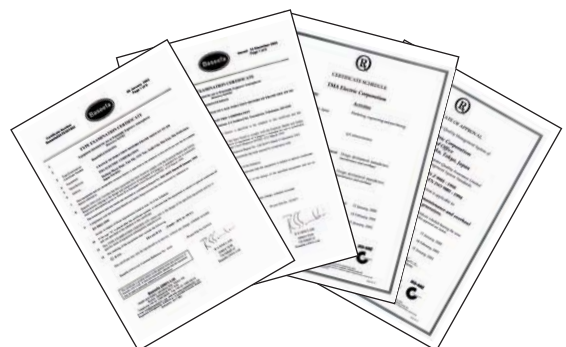
## Our World Wide Application Experience

The world wide application experiences we have amassed in Paper, Steel, Petro-chemical, Mining, Power and Water industries, have provided wealth of important technical information that has been the catalyst to the development of the **21** Series and the new born **21** Series.



## Quality-Certified by Third Parties

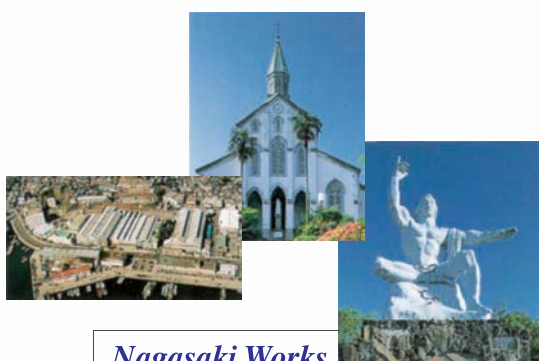
**21** Series motors are manufactured to meet ISO9001 and ISO14001, having been certified by third parties such as Baseefa, CSA, LLOYD's etc.





- Quick response and service in our world wide network.
- Proposal for preventive maintenance using diagnosis instrumentations.
- Providing technical data via the internet.

### <Manufacturing Places>



#### *Nagasaki Works*

6-14 Maruo-machi,  
Nagasaki 852-8004, Japan

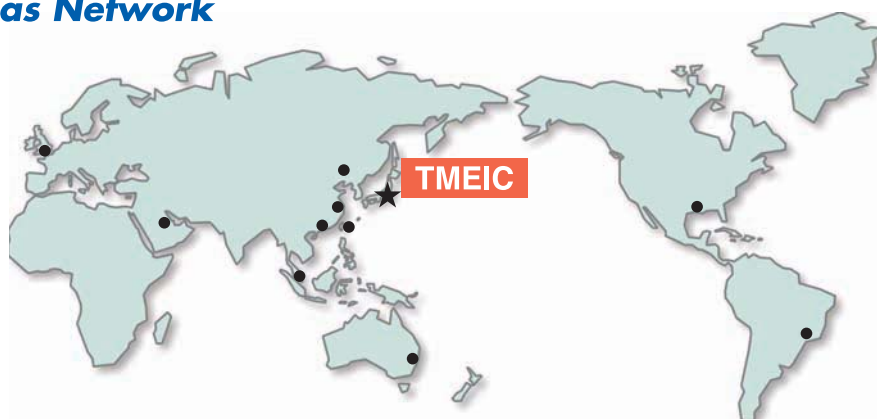


#### *Keihin Works*

2-4 Suehiro-cho, Tsurumi-ku,  
Yokohama 230-0045, Japan



### Overseas Network





## **TMEiC Corporation**

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