

# Transformers



# MEIDEN Transformers are standard design, standard quality.

Since its founding in 1897 MEIDENSHA CORPORATION has not only built up a solid track recorded in production but it has also applied itself unflaggingly to the pursuit of excellence in research and development.

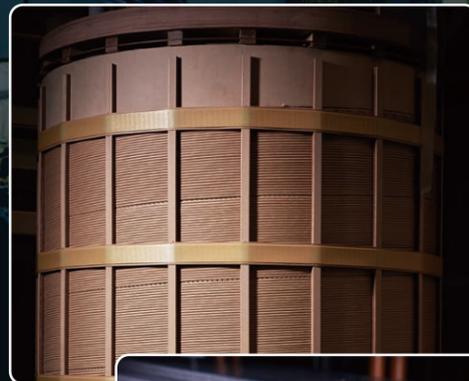
MEIDEN group transformers are manufactured under technical collaboration with MEIDENSHA, which is one of the leading transformer manufacturers in JAPAN and has experience of more than a 120 years in this field.

MEIDEN SINGAPORE PTE. LTD.(MSL) is established in 1975.

It had passed over 50 years we have started to manufacture distribution and power transformer in Singapore.

And, MEIDEN T&D (INDIA) have the most modern factory for supply of EHV Power Transformers in India.

We provide the best quality product from MEIDEN group to all over the world.



## Our Factories on world-wide supply chain



*Japan*

**NUMAZU WORKS**  
Maximam Product

**300kV**  
**3Phase 500MVA**



*India*

**MEIDEN T&D (INDIA)**  
Maximam Product

**500kV**  
**3Phase 500MVA**



*Singapore*

**MEIDEN SINGAPORE**  
Maximam Product

**154kV**  
**3Phase 100MVA**

MEIDEN's technologies are always to develop for high quality products and customer satisfaction.

- more reliable
- a minimized environmental impact(saving energy)

## Power Transformer

A power transformer is the central device of a power transmission and distribution facility, and has to be highly reliable. MEIDENSHA has succeeded in achieving high voltage and large capacity, compact size and weight, low noise as well as low loss and high efficiency through research and development in various technologies such as insulation, short circuit strength, cooling, loss, noise as well as the introduction of new production technology.

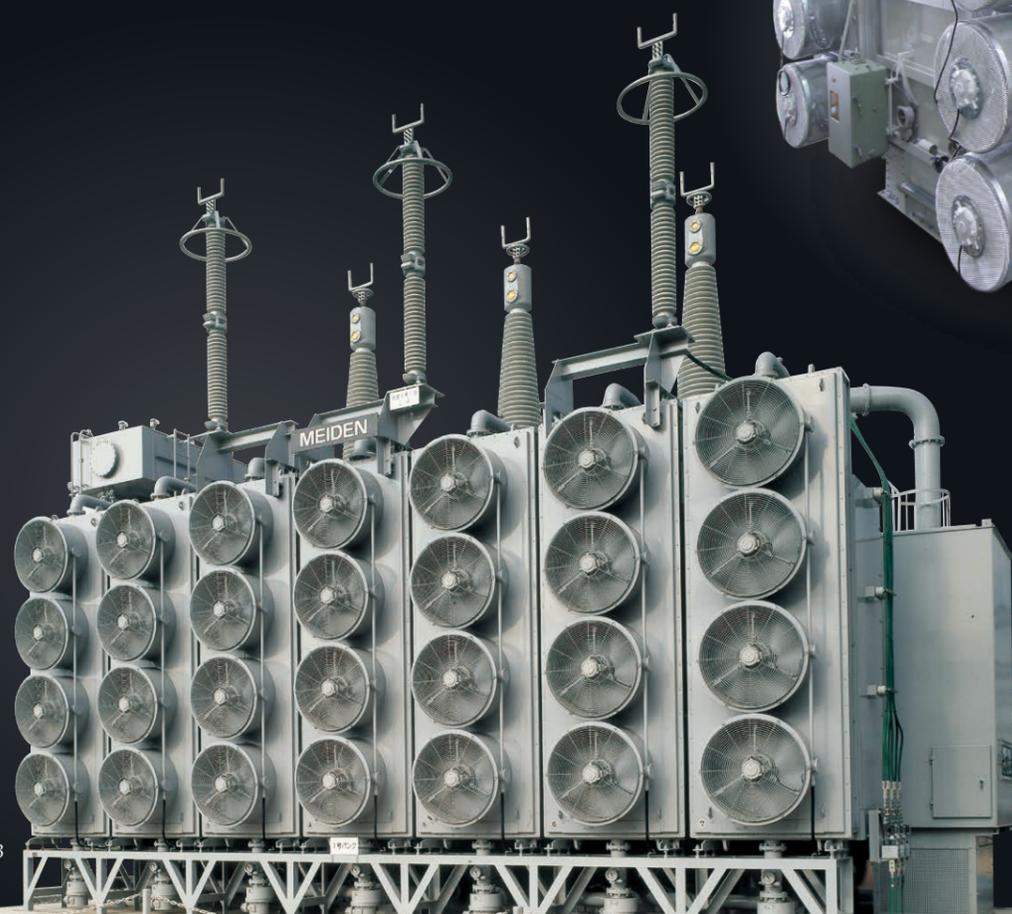
- Reduced stray loss and achieved high reliability through new-type disc winding
- Compact size through barrier insulation structure using molded insulation
- Low loss and noise using V-type joint and step-lap
- Achieved long-term, stable high reliability through the adoption of a structure that separates iron core clamping and winding tightening in an ideal way.



315MVA 400kV



75MVA 66kV



300MVA 275kV

## Shunt Reactor

In the systems of ultra-high voltage overhead line and cables for the major purpose of transmission of large electric power, static capacitance between line and ground is generally large and leading current flows during light load operation..

This leading current actually raises system voltage at the receiving end. Such a phenomenon sometimes make it difficult to regulate generator voltage at the transmitting end and also to control substation power at the receiving end, A shunt reactor is an absorber of reactive power, thus increasing the energy efficiency of the system.

The shunt reactor can be directly connected to the power line or to a tertiary winding of a three-winding transformer. MEIDEN shunt reactor designed minimize losses, sound and vibration, using radial block cores, ceramics spacers.

- Compensation of the higher capacitive reactive power.
- Reduced transmission losses.
- Reduction of network-frequency overvoltage's in case of load variations.

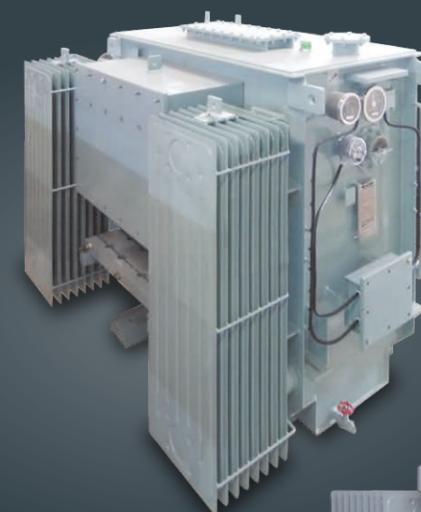


10/25/50MVar 66kV

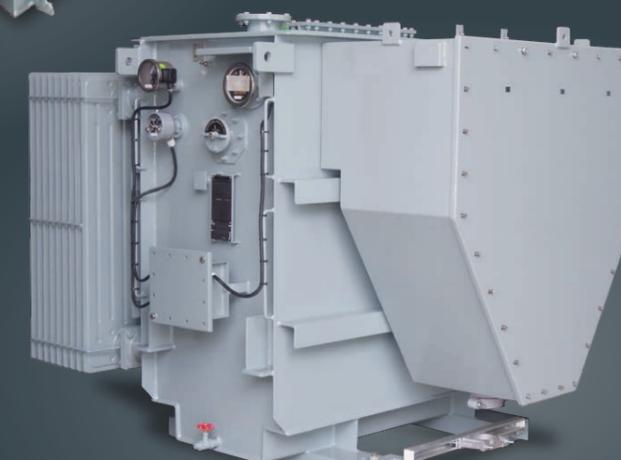
## Distribution Transformer

More than 20,000 MEIDEN distribution transformers are currently used in the countries, mainly Singapore and other ASEAN countries, contributing to the stable power supply in these countries.

- Pre-designed layout patterns ensure to meet short-delivery requirements.
- Many years of experience ensure high-quality. MEIDEN low-loss design meets demanding customer requirements.



1000kVA 6.6kV



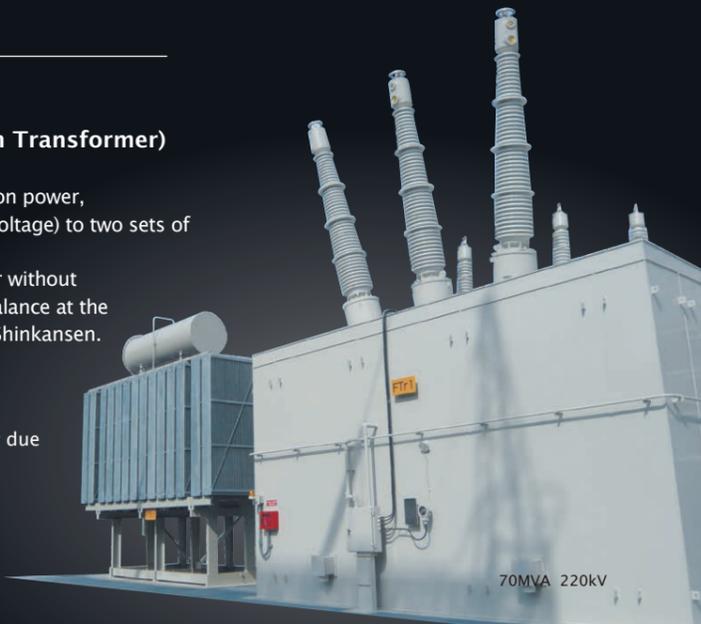
1,000kVA 22kV

# 4 For Railway

## 4-1 AC Traction Power Transformer (Scott-Connection Transformer / Roof-Delta Connection Transformer)

This transformer is used for a main power supply for AC Railway Traction power, which converts three-phase power (special high voltage or ultra-high voltage) to two sets of single-phase power supply. Electric railway specific transformer. This effectively makes single-phase power from the three-phase power without giving the bad effect of voltage fluctuation or three-phase voltage unbalance at the power-receiving side. This type of transformer is applied for Japanese Shinkansen.

- Compact design by our electric field strength analysis technology.
- The Scott-connection transformer makes a surge arrester unnecessary due to its full insulation design.
- The roof-delta connection transformer realizes lower energy loss and compact design compared with a conventional modified Woodbridge connection.



## 4-2 Auto-Transformer

For power feeding voltage, it is stipulated that a 20 kV AC feeding for 'conventional' railways and a 25 kV AC feeding for Shinkansen. AC feeding uses circuit configuration in which current is actively returned to the feeding line by using the feeding system like AT or BT feeding systems. This is to reduce the pantograph impedance (inductive interference) issue against communication equipment. This product is installed in each substation post to enhance rail power absorption effect.

- Applicable to AT feeding system
- Power transmission and distribution



## 4-3 Rectifier Transformer

Under DC feeding system, this transformer steps down the voltage of AC three-phase power to fit with rectifier input. It uses optimal design to meet with special overload rating requirements up-to duty class VI on IEC60146 and extra heavy traction duty on NEMA RI-9, and realizes compact and light weight design.

- Optimal design in combination with rectifier
- High reliability proven by the track records
- Supporting 6- and 12-phase rectification
- It is possible to support using silicone liquid and palm oil, etc. for the environmental consideration



# 5

## SF6 Gas-Insulated Transformer

SF6 gas known for its non-flammability and coordinative ability with environmental conditions. It was widely used in underground substations and indoor substations at underground shopping areas, traffic systems, and public structures. SF6 Gas-Insulated transformers are designed to reduce fire hazards and less risk on the environment. By directly coupling with gas-insulated Switchgear, substation space can be minimized as the result of compact facilities.



a non-flammable, non-polluting and Tank-explosion Prevention Transformer. The SF6 gas-insulated Transformers are suitable for the following applications:

- where safety against fire is essential Buildings such as hotels, department stores, schools, and hospitals Underground shopping areas, underground substations Sites close to residential areas, factories, chemical plants
- where prevention of environment pollution is specifically demanded Water supply source zones, residential quarters, seaside areas Water treatment stations
- where exposure exists to high-level moisture or dust accumulation Inside tunnels, industrial zones

2-30MVA 22/33/66/77kV

## Natural Ester Oil Transformer

MEIDEN environmentally-friendly solution offer filled with a natural ester-based dielectric insulating fluid instead of mineral oil. The lower flammability of this insulating oil also provides the transformer with a higher fire protection. They also have a lower pour point, greater moisture tolerance and improved function at high temperatures are also non-toxic to aquatic life, readily biodegradable and provide a lower volatility and higher flash point.



- Environmentally friendly
- Compactness
- Long-term reliability
- Applicable to Preventive maintenance technique

3-30MVA 11-77kV

# 6

## Mobile Transformer

Mobile transformer and mobile substation rapidly restore electrical service. compact and easy mobility for Emergency Service, Temporary Service and regularly scheduled maintenance. Mobile transformers are very compact due to the application of MEIDEN special insulation and cooling techniques. Mobile transformers are designed to withstand the road travel requirements and maximum stability and protection for safe movement over uneven pavement.



- Rapid restoration of electrical service
- Temporary substation capacity increases
- Forced outage repairs

6MVA 64.5kV



## MEIDENSHA CORPORATION

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[www.meidensha.com](http://www.meidensha.com)

### Overseas Offices & Group Companies

#### CHINA

MEIDENSHA (SHANGHAI) CORPORATE MANAGEMENT CO., LTD.  
MEIDEN PACIFIC (CHINA) LTD.  
MEIDEN ZHENGZHOU ELECTRIC CO., LTD.  
MEIDEN HANGZHOU DRIVE SYSTEM CO., LTD.  
MEIDEN (HANGZHOU) DRIVE TECHNOLOGY CO., LTD.

#### INDIA

MEIDEN INDIA PVT. LTD.  
MEIDEN T&D (INDIA) LTD.

#### INDONESIA

P.T. MEIDEN ENGINEERING INDONESIA

#### KOREA

MEIDEN KOREA CO., LTD.

#### MALAYSIA

MEIDEN MALAYSIA SDN.BHD.  
MEIDEN METAL ENGINEERING SDN. BHD.

#### SINGAPORE

MEIDEN ASIA PTE. LTD.  
MEIDEN SINGAPORE PTE. LTD.

#### THAILAND

THAI MEIDENSHA CO., LTD.

#### VIETNAM

VIETSTAR MEIDEN CORPORATION

#### GERMANY

MEIDEN EUROPE GMBH.  
TRIDELTA MEIDENSHA GMBH.

#### THE UNITED STATES

MEIDEN AMERICA, INC.  
MEIDEN AMERICA SWICHGEAR, INC.

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<https://www.meidensha.com/contact/>

Power and Energy



Power transmission & distribution (T&D) systems

