



**All rights reserved.**

Trademarks mentioned in this document are the property of TAKAOKA TOKO CO., LTD., its affiliates, or their respective owners.

**Subject to change without prior notice.**

The information in this document contains general descriptions of the technical options available, which may not apply in all cases. The required technical options should therefore be specified in the contract.

For more information, please contact the following division.

TAKAOKA TOKO CO., LTD.

International Sales Department

HULIC Toyosu Prime Square 8F, 5-6-36,  
Toyosu, Koto-ku, Tokyo 135-0061 JAPAN

TEL: +81-3-6371-4463

FAX: +81-3-6371-5511

<https://www.ttk.co.jp/en/inquiries/>



# TAKAOKA TOKO POWER TRANSFORMERS





# INTRODUCTION

TAKAOKA TOKO power transformers are result of a 70-year comprehensive experience, incessant research and development. Standard power transformers are on-load tap changers for system voltage regulation under load.

TAKAOKA TOKO power transformers meet basic IEC requirements and can be manufactured to meet ANSI or other standards upon request. System production and modification is regulated and supervised by using an advanced computer system. This system utilizes the latest computer technology supported by TAKAOKA TOKO's long experience in the transformer industry.

TAKAOKA TOKO has a respected, world-wide reputation for dependability and reliability and performance of its products.



# MAIN FEATURES

## High efficiency, lowest noise level, easy maintenance guarantee in the industry.

Keeping top share in the Japanese market, with delivering records 7,000 units including those of 4,100 units for Japanese Electric Power Companies.



## Eco-friendly environmentally sustainable transformers.

At the time of designing, we carry out electric field and heat flow analysis to aim at low-loss power transformers.



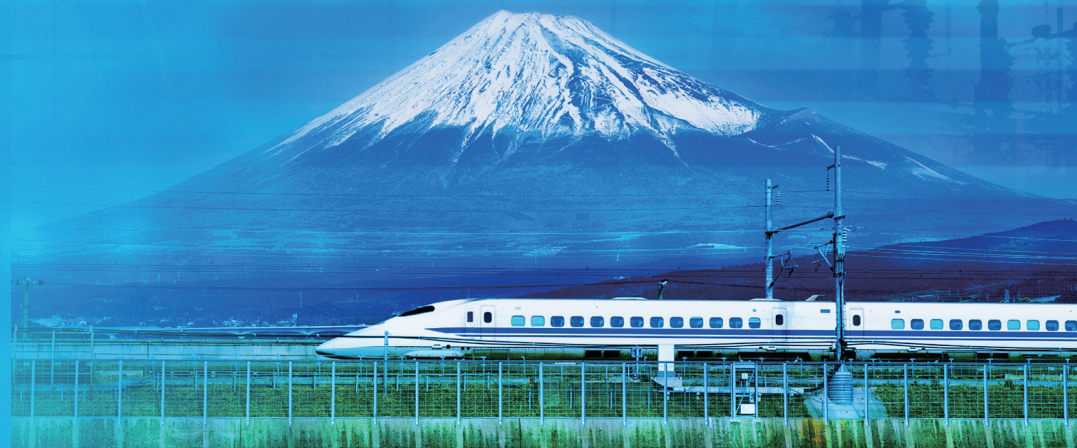
## Every sort of customer service package.

TAKAOKA TOKO makes local requirements into global market. From designing to installation, we offer our worldwide customers non-stop solutions.



## Offer our value more than products.

1. Manufacturing perfectly matched to the particular projects.
2. Meeting needs in relevant local regulations and requirements.
3. Delivering on time, safe and punctual transportation to the installation site.



# Transformers for more stringent environment



## Earthquake performance

Japan has experienced all sorts of earthquakes for many years. Being a government of a country of frequent earthquakes, the Japanese government designated severe constructing regulations. We, TAKAOKA TOKO markets power transformers globally so that we can reach out for our customers' seismic needs.

## Natural disastrous adequacy

Any type of our transformers has demonstrated smooth operations under such severe circumstances as typhoon with a scale of wind velocity, 60 m/s, and as withstanding electromagnetic force due to short circuit.

**TAKAOKA TOKO power transformers have proved low trouble rate in many business areas, which also shows lower accident rate of fire and/or explosion.**



# TAKAOKA TOKO TRANSFORMERS COVER VARIOUS AREA

Abundant power anytime, anywhere, with zero outages – this is the goal of TAKAOKA TOKO. To ensure stable supplies of electric power, our predecessor companies have continued to support Japan's electric power infrastructure, for which the highest reliability is demanded. Today, our power equipment and system business is driven by the products and technologies we have cultivated through years of achievement and by our integrated support for design through to operation of electric power facilities that meet customer requirements.

We are one-stop provider of every element required for optimized electric power plants, including substations for electric power companies; substations that power roads, railways, water distributions systems, and other public infrastructure; and commercial buildings, factories, and other large installations. TAKAOKA TOKO's reliable, comprehensive technology will support the society of the future.



# Examples of our transformers employed and performed

## Extra high voltage substation facilities for railways

Our highly reliable electric power supplies, cultivated through our experience in electric power infrastructure, supports safe and reliable railway operation.

## Spot network power distribution systems for commercial buildings

We provide compact and disaster-resistant power distribution systems configured to match individual building requirements. These systems deliver dependable, stable, and efficient power.

## Gas-insulated high-voltage power distribution facilities for roads

We offer highly reliable and compact power supply systems for road lighting and tunnel ventilation. These systems are for road lighting and tunnel ventilation. These systems enable dependable and safe road transport.

## Extra high voltage substation facilities for factories

We support highly reliable and efficient provision of electric power with comprehensive technical capabilities ranging from custom-configured planning for individual factories to on-site installation, operation, and maintenance.



The Philippines (110/34.5/13.8kV 83.33MVA)



# TECHNICAL FEATURES

## APPLICABLE POWER RANGE

Max. 450MVA  
Max. 275kV

## CORES

A core is miter jointed, manufactured from cold rolled, grain oriented silicon sheets that have a tightly adhering, heat resistant surface coating that ensures high permeability and low loss.

Our core can operate continuously at an over excitation voltage level 5% higher than the rated voltage at the rated frequency and power, without any damages due to overheating or excessive vibration.

And the core construction resists damage due to impact or vibration when the transformer is being transported.



## WINDINGS

In our core type transformers, the standard winding is in a concentric arrangement with a high voltage outer winding.

The windings are constructed from paper covered conductors and are designed to comply with the customer's special needs and specifications. (i.e. Special standards, insulation levels, loss, temperature rise, short-circuit strength etc).

All transformers are designed by advanced computer techniques to give the superior dielectric, mechanical, over voltage and short circuit strength.

## TANKS AND COVERS

Transformer tanks and covers are of welded hot-rolled steel construction and can, upon request, be reinforced to assure sufficient strength against a full vacuum.

In all joints where oil tightness is required, testing is done to insure the quality of each weld. Tank covers are normally welded to the tank top hands, but may be bolted, if it so specified.

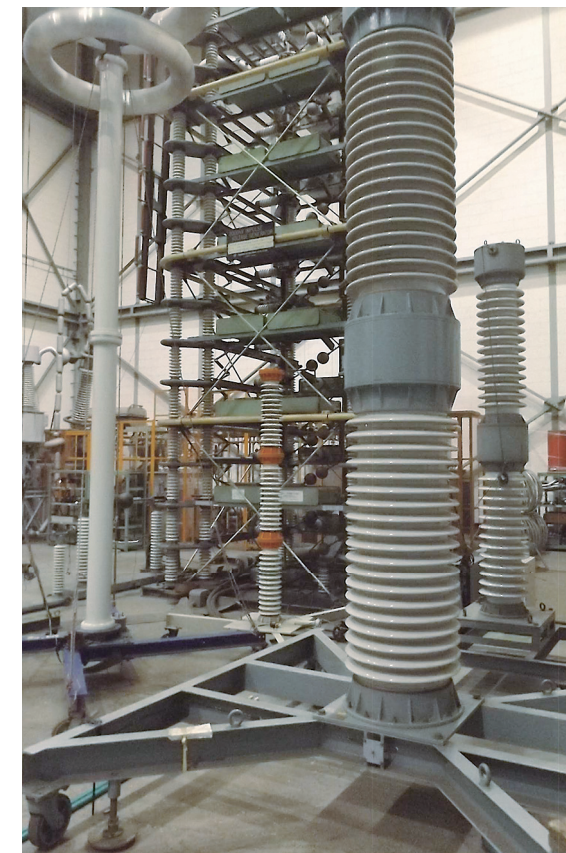
The tank's exterior surfaces are painted with two zinc-chromate prime coats and two pathetic resin finish coats.

A zinc-chromate primer is applied to the interior.

# TESTING

TAKAOKA TOKO OYAMA PLANT has a modern extra high voltage test laboratory. This laboratory, having over 35 meters in length, 22.5 meters in width and 19.5 meters in height, enables to have high voltage transformers up to rated voltage 500KV fully tested. This hall is shielded electromagnetically so as to guarantee the accuracy of the corona test.

Main Testing Equipment	
A.C. generator 3 phase	11,500 KVA
	3,000 KVA
High frequency generator	850 KVA, 250 Hz
Constant voltage and constant frequency motor generator	175 KVA, 50/60Hz
Testing transformer	750 KV
	200 KV
Impulse generator	3000 KV
	1650 KV
	600 KV
Testing condenser	150,000 KVA
Auxiliary transformer	3 phase, 60,000 KVA
	3 phase, 12,500 KVA
	1 phase, 5,000 KVA×3units
Deflection testing equipment	-
Extra high voltage test laboratory	-





# PRODUCTS FOR OVERSEAS CUSTOMERS

TAKAOKA TOKO products have been enjoying high reputation throughout the world.



## ASIA

1. China TR: 3units/DS: 1410 units
2. South Korea DS: 792 units
3. Taiwan DS: 1182 units
4. The Philippines TR: 55 units/DS: 1725 units
5. Malaysia TR: 55 units/DS: 453 units
6. Indonesia TR: 10 units/DS: 903 units
7. Thailand TR: 36 units/ DS:730 units
8. Myanmar TR 2 units/DS: 158 units
9. Bangladesh TR: 1 unit/DS: 332 units
10. Sri Lanka TR: 24 units/DS: 98 units
11. Pakistan TR: 12 units/DS: 74 units

## MIDDLE EAST

1. Iran TR: 11 units/DS: 701 units
2. Egypt DS: 1725 units

## AFRICA

1. Tanzania TR: 24 units/DS: 95 units
2. Nigeria: DS: 306 units

## AMERICA

1. Mexico TR: 17 units/DS: 962 units
2. Brazil TR:1 unit/DS: 459 units

TR: Transformer  
DS: Disconnecter

Date: Dec. 2015



Tanzania (33/11kV 15MVA)



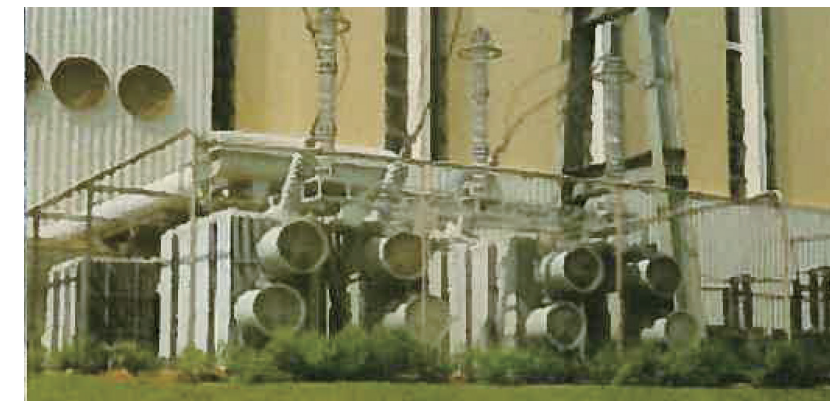
The Philippines (110/34.5/13.8kV 83.33MVA)



Mexico  
(85/23kV 30MVA)



Iran  
Mobile Transformer  
(66/3.45/3.45kV 17MVA)



Indonesia  
(17.5/150kV 268.8MVA)



Tanzania  
(132/33kV 45MVA)