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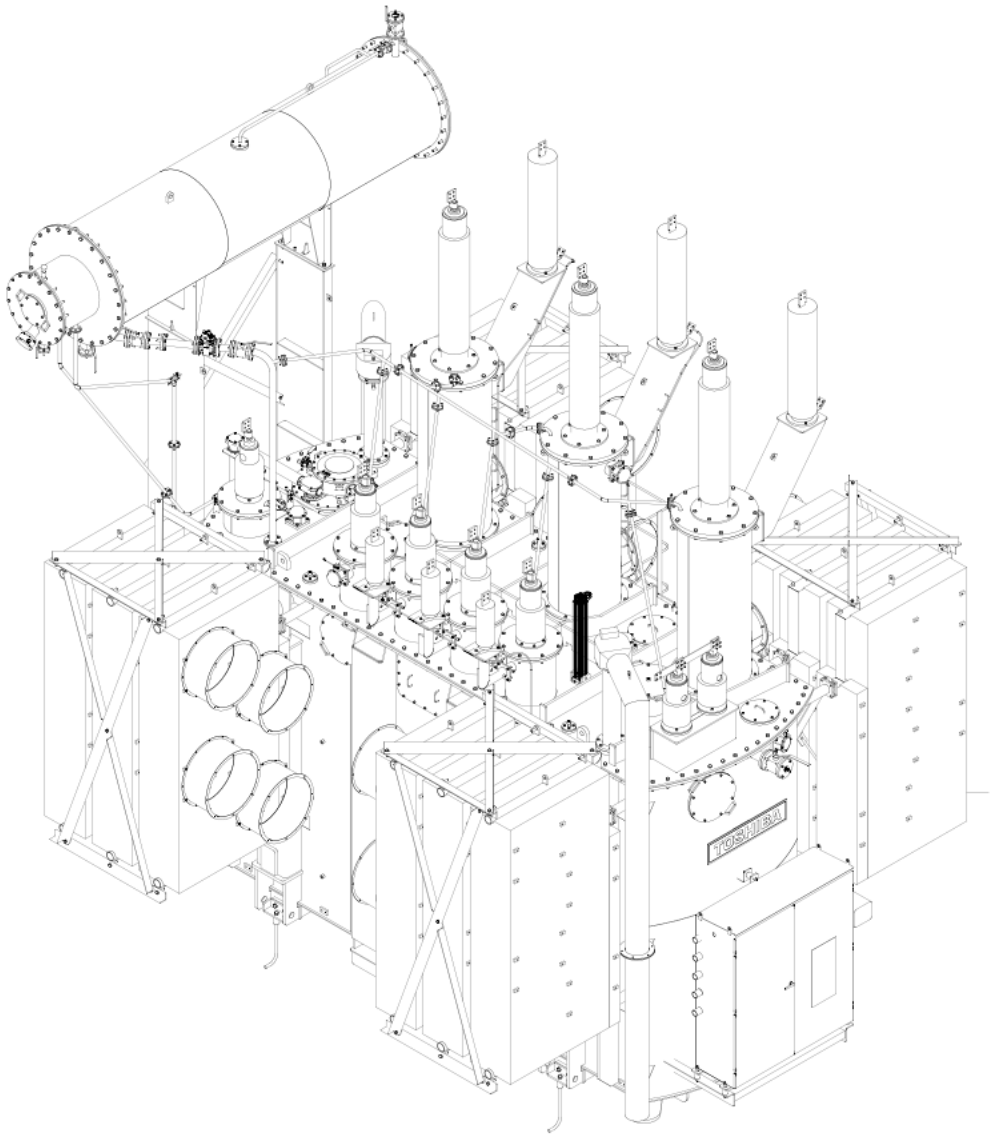
Abstract

This document describes the technical specifications of a high-voltage power transformer manufactured for Toshiba, identified as Serial Number A23009. The unit is unused, ready for sale, and stored by the manufacturer. It is a three-phase, oil-immersed transformer designed for utility-scale applications, offering a nominal capacity of 90/112/140 MVA. The transformer features a primary voltage of 138 kV, a 34.5 kV secondary, and a 13.88 kV tertiary 60 hz.



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1. Introduction

Three phase transformer available for sale, this document describes the various characteristics and its current status. The subject of the opportunity is as follows:

General Data	
Manufacturer	Thoshiba
Serial No.	A23009
Quantity	1
Available from	January 2026
Country	USA

Technical Data	
Condition	New
Year of construction	2025
Rated Voltage	HV 138 kVp LV 34.5 kVp
Rated Power 65°C	90/112/140 MVA
Rated frequency	60 hz

2. Description of Supply

2.1 MV/HV Step-Up Power Transformer 138/34.5kV 90/112/140 MVA

Power Transformer is designed for industrial and power distribution applications, ensuring high reliability and efficiency. This transformer has been subjected to rigorous testing to ensure compliance with international standards and optimum performance.

2.2 Technical data

Parameter	Value
Model	138/34.5kV 90/112/140 MVA
Manufacturer	TOSHIIBA
Serial Number	A23009
Application	Industrial and Power Distribution
Transformer Specifications	
Rated Power	90/112/140 MVA
Primary Voltage (HV)	138 kV
Secondary Voltage (LV)	34.5 kV
Cooling Class	ONAN/ONAF1/ONAF2
Frequency	60 Hz
Construction and dimensions	
Total Transformer Weight (Including Oil)	141’190 kg
Shipping weight	70’700 kg
Dimension (LxWxH)	7.72x6.045x7.26 m
Accessories	
Winding Hot Spot Temperature Detector (RTD)	Yes
Winding Hot Spot Temperature Indicator Relay	Yes
Field Services	
- Offload	Yes
- Assembly and Oil Filling	Yes
- Field Inspections and Testing	Yes
Spare Parts	
- Complete Set of Gaskets	Yes
- One Gallon of Touch-Up Paint	Yes
- One High Voltage Line Bushing	Yes
- One Low Voltage Line Bushing	Yes
- One Neutral Bushing (Each Type)	Yes
- One Sudden Pressure Relay	Yes
- One Lot Breather Desiccant	Yes
Reference Standards	
International Standards	ANSI-IEEE,
ANSI C2	National Electrical Safety Code
ASTM Standards	Standards for liquid-immersed power transformers
IEEE C57 Series	Insulating oils and materials
Other Standards	NEMA, ASME

3. Tests performed

All tests were conducted by the manufacturer during the transformer's final factory acceptance phase. Below is the list of tests performed, with detailed results available in the attached documentation.

3.1 Insulating Level Tests

- Basic Lightning Impulse Insulation Level (Full Wave – HV, LV, Tertiary)
- Chopped Wave Lightning Impulse (HV)
- Applied Voltage Test (AC Withstand)
- Induced Voltage Withstand Test (180 Hz, long duration, with Partial Discharge measurement < 250 pC)

3.2 Performance Data Tests

- No-Load Losses and Excitation Current (corrected to 20°C)
- Load Losses at Rated Current (corrected to 85°C)
- Short-Circuit Impedance Voltage (%IZ) at multiple tap positions
- Efficiency and Voltage Regulation (PF 1.0 / PF 0.8)
- Zero-Sequence Impedance Test
- Single-Phase Excitation Current Test

3.3 Thermal Tests

- Temperature Rise Test (Oil and Winding) at 90 MVA and 140 MVA
- Hot-Spot Temperature Evaluation

3.4 Auxiliary and Mechanical Tests

- Power Absorbed by Cooling Fans (ONAF I and ONAF II)
- On-Load Tap Changer Functional Test
- Leakage Test at Ambient Temperature (0.5 kg/cm² for 24 hours)
- General Dimensional Verification

3.5 Insulation & Material Tests

- Winding and Core Insulation Resistance Test
- Insulation Power Factor (Doble) & Capacitance (C1 / C2 Bushings)
- Insulating Oil Tests (before and after filling): dielectric strength, water content, interfacial tension, acidity, dissipation factor, color, dissolved gas analysis (DGA)

3.6 Current Transformer (CT) Tests

- CT Ratio Test

- CT Excitation Curve Test
- CT Burden and Accuracy Tests
- CT Polarity Check
- CT Secondary Winding Resistance at 85°C

4. Storage status

Left intentionally blank.

5. Scope of Supply

Position	Quantity	Description
1000	1	MV/HV Step-up Power Transformer 138/34.5 kV 90/120/140 MVA

Table 1: scope of supply.

5.1 Exclusions

Scope not explicitly listed in the Scope of Supply (Table 1) is excluded.
The following items are explicitly excluded:

Mechanical
Modification of any existing systems not explicitly cited.
Missing parts and components.
Electrical
Modification of existing systems not explicitly cited.
Civil
Land preparation
Temporary accesses and final accessing roads
Security plan and hardware.
Temporary accommodation
Finishing and fencing
First aid station and ambulances
Waste disposal facility

Table 2: exclusions from the Scope of Supply.

Project Management
Attainability of installation, commissioning and operation permits, or any other permit.
Assessment and acceptance of safety relevant issues.
Any study, engineering, documentation, or other service.
Additional works resulting from changes in laws or any other reasons, for which EECC is not responsible.
Building of Site Facilities of any kind (lights, water supply and treatment, heating, power supply, etc.).

Custom duties and taxes.
Engineering
Design and detailed engineering of existing equipment.

Table 3: exclusions from scope of Services.

5.2 Technical documentation

Following documents are part of the technical documentation (list is preliminary):

Pos.	Document	Available
1	General	
1.1	Document & drawing list	yes
1.2	Technical data sheet	yes
1.3	Component manuals	yes
1.4	Quality documentation	yes

Table 4: technical documentation

Economic evaluation

General Data	
Manufacturer	Toshiba
Serial No.	A23009
Quantity	1
Available from	January 2026
Country	USA

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Sales considerations

These transformers are ordered by design and manufactured according to specific grid and generation requirements. With its three transformation steps, this transformer can handle transmission, distribution and power generation. The specific data are for example short circuit currents. However, this transformer can also be used with only two transformation steps, making it versatile. Standard production times are around 3-4 years.

Selling points:

⇒ OEM warranty still in force.
⇒ material is available today. No production time lag.
⇒ material is packaged and ready to be shipped.
⇒ the technology is up to date.

To be considered:

⇒ the logistics costs for this unit are significant
⇒ price must still be attractive, so that even those with no urgent requirements will avoid considering the purchase of new units.
⇒ economic evaluation does not include VAT, import or export taxes.
⇒ economic evaluation does not include connecting cables of any kind.
⇒ economic evaluation considers the material as it is and where it is.
⇒ economic evaluation considers the material in as new condition.

Sales strategy:

⇒ immediate availability, to find opportunities where there has been either a production problem or a situation where there has been a major failure where the costs of non-production are important.
⇒ opportunity scouting focuses on USA and neighboring nations until 60 Hz region is completed first.
⇒ opportunity scouting focuses on nations until 60 Hz America is completed first.
⇒ the strategy is not fixed and unidirectional. Feedback from each interested or uninterested opportunity will need to be analyzed in detail to have sales sensitivity and be able to adjust the strategy at any time.
⇒ direct sales through our worldwide network of partners.
⇒ use of our on-line marketplace to support direct sales, and that will list all material description, technical data, and photos.

Sales targets:

⇒ public utilities, private companies, investors, project developers.
⇒ hybrid or innovative projects where a solar field or wind farm can be included.
⇒ existing plants that need to expand productivity.
⇒ trafo major failure situation.
⇒ insurance and reinsurance companies.

6. Attachments

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