

# CERTIFICATE OF CONFORMITY

**1. FIRE PROTECTION EQUIPMENT**

2. Certificate No: FM24US0233
3. Equipment:  
(Type Reference and Name) Oil Immersed Power Distribution Transformers
4. Name of Listing Company: Qingdao Exnovo Electric Co Ltd
5. Address of Listing Company: N. 1010 Hong Liu He Road, Huangdao Zone, Qingdao, 266555, China
6. The examination and test results are recorded in confidential report number:

PR469374 dated 26 November 2024

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

FM 3990:2022

8. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
9. Approval Guide Listing Category:  
Approved Liquid Insulated Transformers

**Certificate issued by:**



26 November 2024

J.E. Marquedant  
VP, Manager - Electrical Systems

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmapprovals.com](mailto:information@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

F 320 (Jul 24)



**CERTIFICATE OF CONFORMITY**  
 US Certificate of Conformity No: FM24US0233

**10. Description of Equipment:**

SPECIFIED DATA	UNITS/OTHER	DATA SHOWN PER UNIT QUANTITY
Phase	Φ	Three Phase/Single Phase
Frequency	Hz	50/60
Location		Indoor/Outdoor
Parallel Operation		Possible
Type of Load		Various
Type of Supply (Utility, Generator)		Industry or Utility
Transformer Class / Design Standard		Distribution and power; IEC60076/AS60076 or C57.12.00 design standard
KVA Rating Range	KVA	25 -10000
Cooling Method		KNAN
Cooling Fluid		FM approved less flammable transformer fluid as below: Envirotemp FR3, FR3® Fluid, MIDELE 7131, MIDELE eN1204, MIDELE eN1215, DEEP Natural Ester Insulating Oil, Biotransol HF, Transol Synth 100, Paryol 2S, Paryol Electra 7426, Paryol Tras 24
Radiators	Yes	Corrugated integrated (welded/attached to a tank) or Detached Corrugated or Graded
Fans		N/A
Vector Group		Various
Primary Voltage	kV	Up to 36
Taps	Yes	3 to 7, off load tap changer, 2.5% or 5%
Secondary Voltage	kV	Up to 11
Neutral		Solid Ground; other type is possible
Primary Connection		Delta, Wye Zigzag or I
Secondary Connection		Delta, Wye, Zigzag or I
Secondary Accessible Neutral		Yes when required

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA  
 T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmaprovals.com](mailto:information@fmaprovals.com) [www.fmaprovals.com](http://www.fmaprovals.com)



**CERTIFICATE OF CONFORMITY**  
US Certificate of Conformity No: FM24US0233

Primary BIL Level	kV	Up to 200
Secondary BIL Level	kV	Up to 75
Neutral BIL Level	kV	Up to 200 for primary, up to 75 for secondary
Temperature Rise Winding	°C	65 °C above 40 °C (can vary by customer request)
Temperature Rise Insulation	°C	60 °C above 40 °C (can vary by customer request)
Enclosure		Rectangular
Cover		Bolted
Cover thickness	mm	4 to 12
Tank thickness walls	mm	4 to 12
Tank thickness ventilation	mm	1.5
Impedances Base MVA (Primary to Secondary)	%	Various
Pressure Relief Devices (PRD)		Yes
Liquid Level Gages (LLG)		Yes
Liquid Temperature Gages (LTG)		Yes
Sudden Pressure Relief Device (SPD)		Yes, when required
Pressure Vacuum Gages (PVG)		Yes, when required
Winding Temperature Indicator (WTI)		Yes, when required
Fuses		External for larger capacity transformers. Integrated internal fuses can be installed for smaller capacity transformers (per customer request).
Circuit Breakers		N/A (external if installed)
Current Transformer		Yes, when required

**11. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**12. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmaprovals.com](mailto:information@fmaprovals.com) [www.fmaprovals.com](http://www.fmaprovals.com)



**CERTIFICATE OF CONFORMITY**  
US Certificate of Conformity No: FM24US0233

**13. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
26 November 2024	Original Issue. Reference PR469374



To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmapprovals.com](mailto:information@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

F 320 (Jul 24)

