

Power transformer test plan

电力变压器试验计划

Client:

Type: ZGS-H-750KVA/12.5

ZGS-H-750/12.5 \pm 2x2.5%/0.48 Frequency 60Hz

S/N:

No.: Y51632

Manufacturer: Jiangsu Yawei Transformer Co., Ltd.

Revision: 1.2

revision log: 1.2

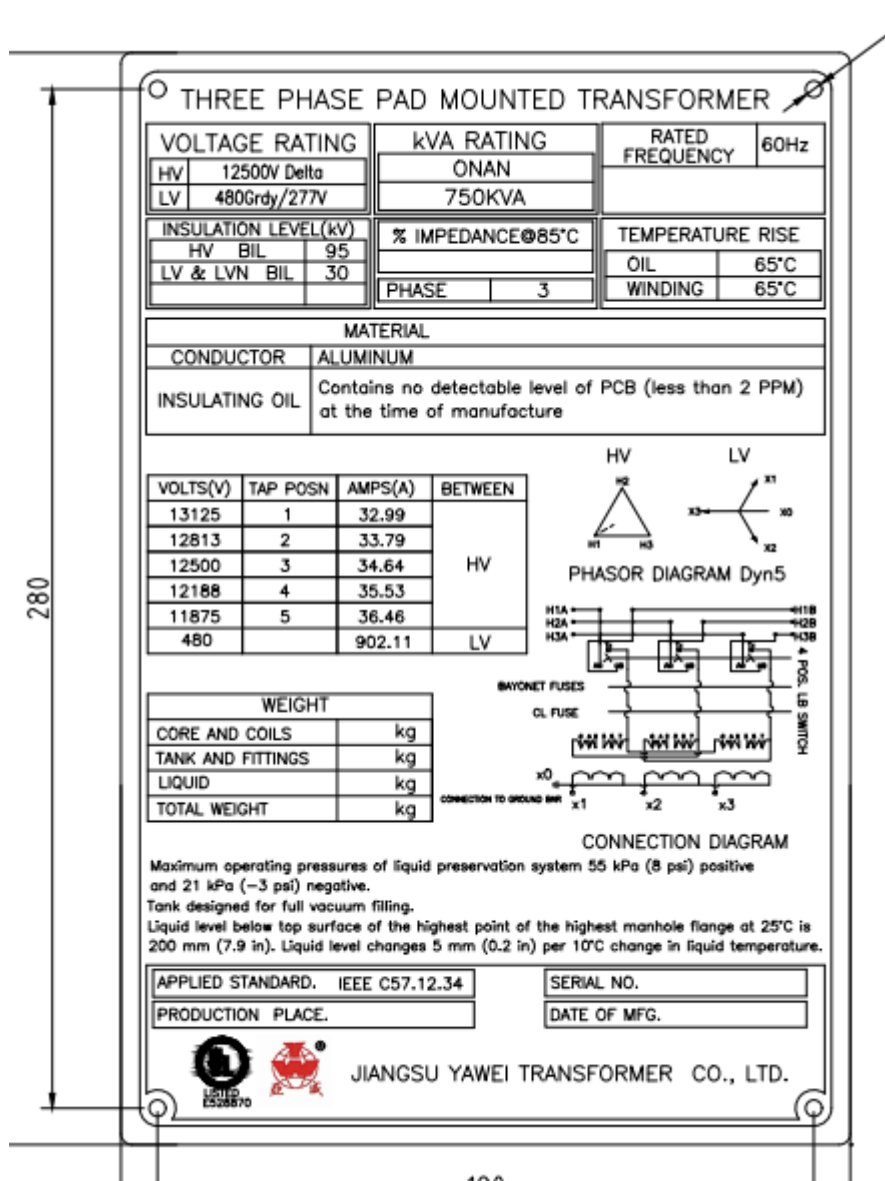
Editor: Yawei

Reviewer: Yawei

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1.Product parameter



2. test standard 测试标准

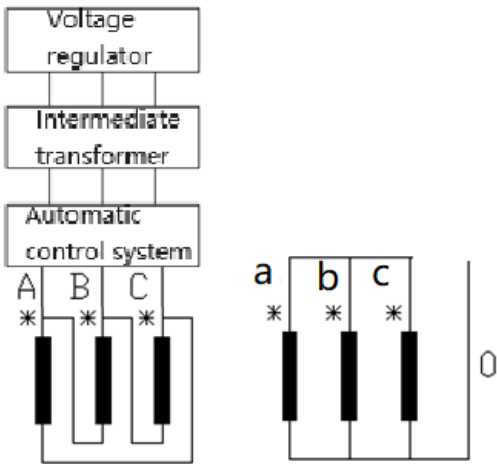
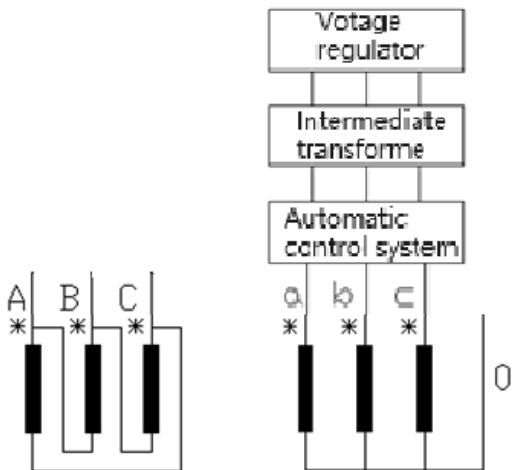
IEEE C57.12.00

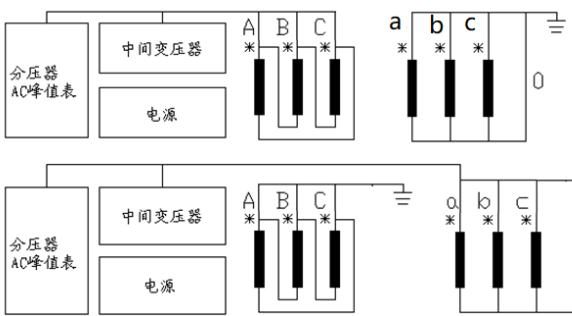
IEEE C57.12.90

JB/T501-2021 Power Transformer Test Guidelines 电力变压器测试指南
technical specifications – Attachment A 技术协议

3 Test item, method, standard 试验项目、方法、标准

No	Test item	Test method	Standard requirement												
3.1	Measurement of insulation resistance, Check of core and frame insulation 绝缘电阻测量、铁芯和夹件绝缘检查	<div>1. Equipment: Insulation resistance meter - ZC-7</div> <div>2. winding insulation resistance measurement test voltage2. 5kV.绕组绝缘电阻测量试验电压 2.5kV。</div> <div>3. core and clamp insulation resistance measurement test voltage0.5kV (Check under the body before the box.) 铁芯，夹件绝缘电阻测量试验电压 0.5kV(器身下箱前检查)</div> <div>4. Test item according to the table below (unsequenced) 测试项目如下表所示（无顺序要求）</div> <table><tr><td>N O</td><td>testing object</td><td>Ground position</td></tr><tr><td>1</td><td>HV</td><td>LV 、 oil tank</td></tr><tr><td>2</td><td>LV</td><td>HV、 oil tank</td></tr><tr><td>3</td><td>HV+LV</td><td>oil tank</td></tr></table>	N O	testing object	Ground position	1	HV	LV 、 oil tank	2	LV	HV、 oil tank	3	HV+LV	oil tank	IEEE C57.12.90 10.11 and Technical Specifications Provided the measured value.
N O	testing object	Ground position													
1	HV	LV 、 oil tank													
2	LV	HV、 oil tank													
3	HV+LV	oil tank													
3.2	Voltage ratio and check of vector group 电压比和矢量组检查	<div>1. test equipment: Full automatic ratio tester - JYT</div> <div>2.Measurement requirements:</div> <div>(1) Measure the voltage ratio of all taps of HV to LV</div> <div>(2) Measure the polarity and vector group at the same time</div> <div>1.测试设备： JYT 自动比值测试仪</div> <div>2.测量要求：</div> <div>(1) 测量高压与中压所有分接头的电压比</div> <div>(2) 同时测量极性和矢量组</div>	IEEE C57.12.90 6&7and technical specifications 1.On the main tap gear voltage ratio deviation should be less than ±0.5%. 2.Vector group:Dyn5												

3.3	Measurement of DC Winding resistance 直流绕组电阻	1. test equipment: DC resistance tester –TCR-8110E 2. Measurement requirements: measure the DC resistance of all winding and all taps, and accurately record the oil surface temperature 1.测试设备：TCR-8110E 型直流电阻测试仪 2.测量要求：测量所有绕组和分接头的直流电阻，准确记录油面温度	IEEE C57.12.90 5 and Technical Specifications Provided the measured value.
3.4	Measurement of short-circuit impedance and load loss 短路阻抗和负载损耗的测量	1. Test Equipment: microcomputer control transformer test stand, GD-300C power analyzer, 试验设备：微机控制变压器试验台、GD-300C 功率分析仪。 2. The test adopts the short-circuit method to measure the short-circuit impedance and load loss of rated frequency, rated tap. HV-LV 试验采用短路法测量额定频率、额定抽头的短路阻抗和负载损耗。 HV-LV 3. Test the power supply circuit diagram 测试电源电路图 	IEEE C57.12.90 9.3 and Technical Specification (reference temperature 85°C) 1.Impedance voltage 阻抗电压 HV-XV 5.75%±7.5%. Efficiency: >99.40%
3.5	Measurement of no-load loss and current 空载损耗和电流的测量	1. Test Equipment: microcomputer control transformer test stand, GD-300C power analyzer, intermediate transformer. 试验设备：微机控制变压器试验台、GD-300C 功率分析仪、中间变压器。 2. Test power supply line Figure 测试电源线图 	IEEE C57.12.90 8 and Technical specifications 技术规范 Efficiency: >99.40%

		<p>3. No-load loss and no-load current are measured at 100%, rated voltage and rated frequency. The specified voltage is applied on HV side, LV is open, and the switch is placed in the main tap</p> <p>空载损耗和空载电流分别在 100%额定电压和额定频率下测量。高压侧施加规定电压，低压断开，开关置于主抽头。</p>	
3.6	<p>Applied voltage test 加压试验 (AV)</p>	<p>1 Equipment: HY-AC20 power frequency voltage test set, the test uses 50Hz power frequency voltage, the test time is 60s.</p> <p>设备：HY-AC20 工频电压试验台，试验采用 50Hz 工频电压，试验时间 60s</p> <p>2 Test voltage: 测量电压</p> <p>HV 34KV</p> <p>LV 10KV</p> <p>3 Test circuit diagram 测试电路图</p>  <p>4 Check the oil level and remove gas from the tank before the test. The oil tank and untested winding should be connected to ground. The test voltage starts from no more than 1/3 of the specified test value, and then rapidly increases to the test value and lasts for 60 seconds. At the end of the test voltage should be rapidly reduced to less than 1/3 of the test value, and then closed. 测试前，检查油位并清除油箱中的气体。油箱和未经测试的绕组应接地。测试电压从不超过规定测试值的 1/3 开始，然后迅速增加到测试值并持续 60 秒。试验结束时，电压应迅速降低到试验值的 1/3 以下，然后闭合。</p>	<p>IEEE C57.12.00 5.10.5.2 & IEEE C57.12.90 10.6and Technical Specifications If the test voltage does not show a sudden drop, the tested transformer does not show signs breakdown and there is no discharge sound, the test is passed 技术规范 试验电压未出现骤降，试验产品未出现击穿，无放电声，试验合格</p>
3.7	<p>Induced voltage withstand test (IVW) 感应耐压试验 (IVW)</p>	<p>1.Equipment used: microcomputer control transformer test stand, GD-300C power analyzer, intermediate transformer, generator set.</p> <p>所用设备：微机控制变压器试验台、GD-300C 功率分析仪、中间变压器、发电机组。</p> <p>1. Apply 2 times the specified voltage at the end of the LV line, the HV end is open, and the switch is placed in the main tap.在低压线路末端施加 2 倍于规定电压，高压端打开，开关置于主抽头。</p> <p>2. LV 0.96kV</p>	<p>IEEE C57.12.00 5.10.5.5 & IEEE C57.12.90 10.8and Technical</p>

3.8	Insulation oil test and dissolved gas analysis 绝缘油测试和溶解气体分析	<p>1. Provide a datasheet of the oil manufacturer that states compliance of the oil with the provisions of C57.106 in regard to physical, chemical, electrical properties and other values. 根据 C57.106 的有关规定进行物理、化学、电气性能等试验，提供试验报告</p> <p>2. Test equipment: DX-801 oil dielectric strength tester, DH601 oil dielectric loss tester, WKT-A9 trace moisture tester, medium 2000A oil cartographic tester, etc. 测试设备：DX-801 油介电强度测试仪、DH601 油介电损耗测试仪、WKT-A9 微量水分测试仪、介质 2000A 油测图仪等。</p> <p>Take oil samples in the following order for gas cartographic analysis:</p> <p>1) After the tests</p> <p>按以下顺序抽取油样进行气体色谱分析：</p> <p>1) 试验后</p>	<p>IEEE C57.130</p> <p>Dielectric strength (kV) >45kV</p> <p>DDF(90°C)(tan δ %) < 0.5%</p> <p>Water content (ppm) <20(mg/kg)</p> <p>H₂ <30(uL/L)</p> <p>C₂H₂=0(uL/L)</p> <p>ΣCH <20(uL/L)</p> <p>and Technical specifications</p>
3.9	Leakage test 试漏试验	<p>Test method: static pressure method</p> <p>Test requirements:</p> <p>Oil level pressure at least: 50kPa</p> <p>Test duration: 12 hours</p> <p>Test results require: no leakage and damage</p> <p>试验方法：静压法试验要求：</p> <p>最高油位压力：50kPa 测试持续时间：12 小时测试</p> <p>结果要求：无泄漏和损坏</p>	Technical Specifications