

GTB Dry-type Testing Transformer



Contents

I .Product Overview.....	- 2 -
II .Working principle.....	- 2 -
III.Technique Index.....	- 4 -
IV.Main Technique Parameters.....	- 5 -
V .Operation Method.....	- 6 -
X(T)C Transformer Control Unit.....	- 8 -
I Overview.....	- 8 -
II Product Series.....	- 8 -
III Panel Outline.....	- 9 -
IV External Wiring Diagram.....	- 9 -
V Operating Procedures.....	- 10 -
VI Operation Conditions.....	- 11 -
VII Attention.....	- 11 -
VIII Packing List.....	- 12 -

I .Product Overview

GTB series dry type test transformer adopts advanced production equipment, coil winding epoxy vacuum casting and CD type iron core new technology. Compared with oil-immersed transformer of the same kind, GTB series dry type test transformer obviously reduces weight, reduces volume, improves insulation strength and moisture resistance, and effectively weakens magnetic leakage and greatly strengthens the impact ability of transformer to withstand tested short-circuit current.

This series of products has small volume, beautiful shape, stable performance, easy to carry and especially suitable for field operation. It is a new type of AC-DC dual-purpose high voltage test transformer. This series of devices are suitable for power system and power users to test the insulation performance of various electrical equipment, electrical products of various voltage system with DC high voltage small current or high voltage power supply.

II .Working principle

The input voltage of this series of products is 200V (400V). By changing the input voltage according to the need of electromagnetic induction principle, the output high voltage can be continuously adjusted from zero volt to the highest rated value.

In the DC withstand voltage and leakage current test, as long as the high voltage silicon stack is rotated in the high voltage output terminal, the input voltage can be changed, thus obtaining different values of DC high voltage output.

This series of products is shown in Figure 1 in detail.

When used as cascade, its connection is shown in Figure 2.

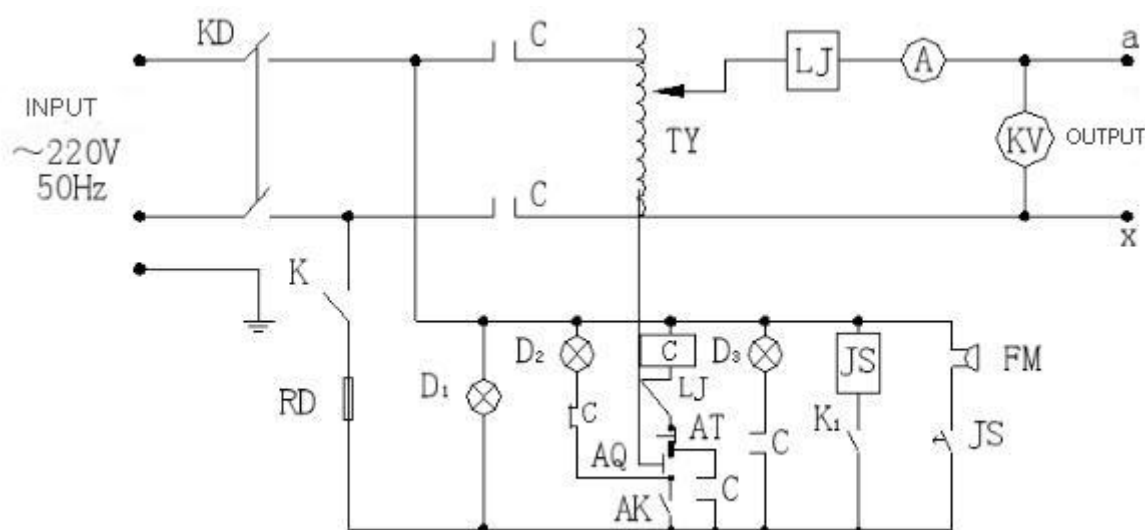


Fig 1

GTB: Testing transformer

TY: Self coupling voltage regulator

LJ: Over current relay

C: AC contactor

K: Total power switch

AK: Regulator return zero limit switch

CL: high voltage silicon stack

A: Output ammeter

JS: Time relay

FM: Alarm

D1, D2, D3: Indicating lamp

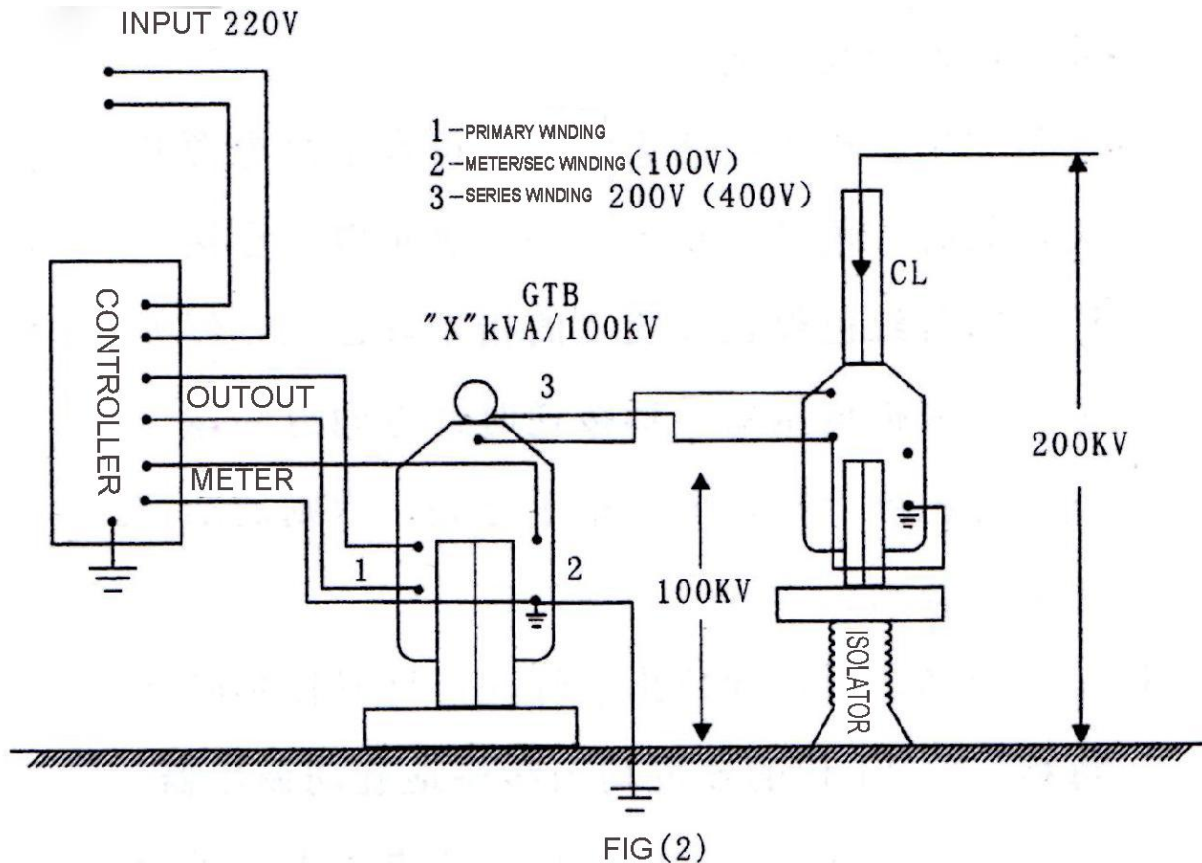
RD: Fuse

K1: Time relay power switch

AQ: Start button.

AT: Stop button

KV: output voltmeter



III. Technique Index

1. Output voltage waveform: sine wave
2. Output waveform distortion rate: less than 1%
3. No load loss: 0.2% to 0.35%
4. Induced voltage withstand: $1.1 \times \text{rated voltage} / 1\text{min}$
5. Short-circuit impedance of the single test transformer: 4.5%~12% ($\pm 10\%$).
6. Voltage adjustable accuracy: $\pm 1\%$.
7. Voltage instability: $< 1\%$
8. Over voltage protection function.
9. Surface temperature rise: $< 55^\circ\text{C}$
10. Permitted continuous operation time of 0.5 hours at rated capacity

11. Continuous running time: $\leq 10\text{kVA}$: within 2 hours interval, allowing continuous operation for 0.5 hours. $\leq 15\text{kVA}$, each interval of 4 hours, allowing continuous operation for 0.5 hours.

12. At half rated voltage and half rated current, running continuously for 4 hours.

IV. Main Technique Parameters

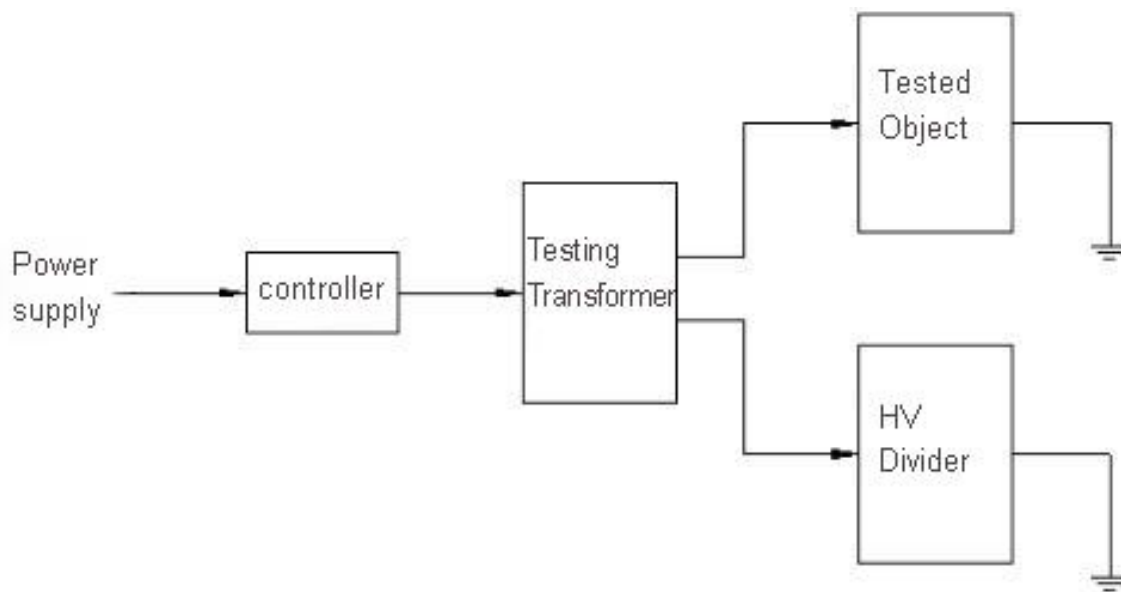
Model No.	CAP (kVA)	Input voltage (V)	Output voltage (kV)	Output current (mA)	Output dc voltage (kV)	Size maximum (mm)	Weight (kg)
GTB-1.5/50	1.5	200 (400)	50	30	70	250×180×370	13
GTB-3/50	3			60		330×270×550	30
GTB-5/50	5			100		400×330×670	47
GTB-6/50	6			120		400×330×670	47
GTB-10/50	10			200		430×370×750	68
GTB-20/10	20	200 (100)	10	2000	/	470×370×750	83
GTB-20/50	20	200 (400)	100	400	70	470×370×750	85
GTB-30/50	30			600		520×410×780	120
GTB-5/100	5			50	140	430×370×1100	66
GTB-10/100	10			100		470×370×1100	77
GTB-20/100	20			200		520×410×1050	120
GTB-30/100	30			300		600×140×1050	160
GTB-50/100	50			500		650×460×1010	230

V. Operation Method

1. Before the test, "GND" end of the HV test transformer shell and controller all must be well grounded, otherwise the safety of human and equipment will be endangered.
2. The operator should know the electrical principle and wiring diagram of HV test transformer and power control box and how to use before the operation. When carrying out DC withstand voltage and leakage test, the high-voltage silicon stack and micro-ampere meter can be firstly rotated into the high-voltage end of the high-voltage testing transformer.
3. After all get well placed, check if wiring is correct, then close the main power switch, at this time the red switch indicating light is on. If it doesn't turn on, please counter-clockwise rotate the regulation handle to return to zero position. The red stop button is on. Otherwise the start button WON'T work.
4. Press the start button and the green button indicating light is on. At this time, rotate the voltage regulator handle slowly and evenly clockwise at the speed of 1.5-2 kV per second. The high voltage rises gradually, and pay close attention to the indication of the voltmeter and the condition of the test sample until it is adjusted to the required test voltage.
5. To test the voltage test time of the product, pull the timer to set the time, then press the timing and alarm switch, the test will be carried out in the preset time, and alarm to inform, if the product under test is broken down,

over-current relay automatically trip, at this time read the value from the voltmeter, that is, the value of the product breakdown voltage.

6. If the product under test is to be protected from breakdown, the protective ball gap can be connected at HV side, set the ball discharge voltage to be about 1.15 times of the test voltage.
7. schematic diagram of high voltage test:



VI. Notes

1. In normal insulation, this series of products is not allowed to work at voltage exceeding the ratings
2. When connecting testing transformers in series, pay special attention to checking the status of transformer body and insulation support, the wiring correctness, protection grounding of the whole system.

X(T)C Transformer Control Unit

I Overview

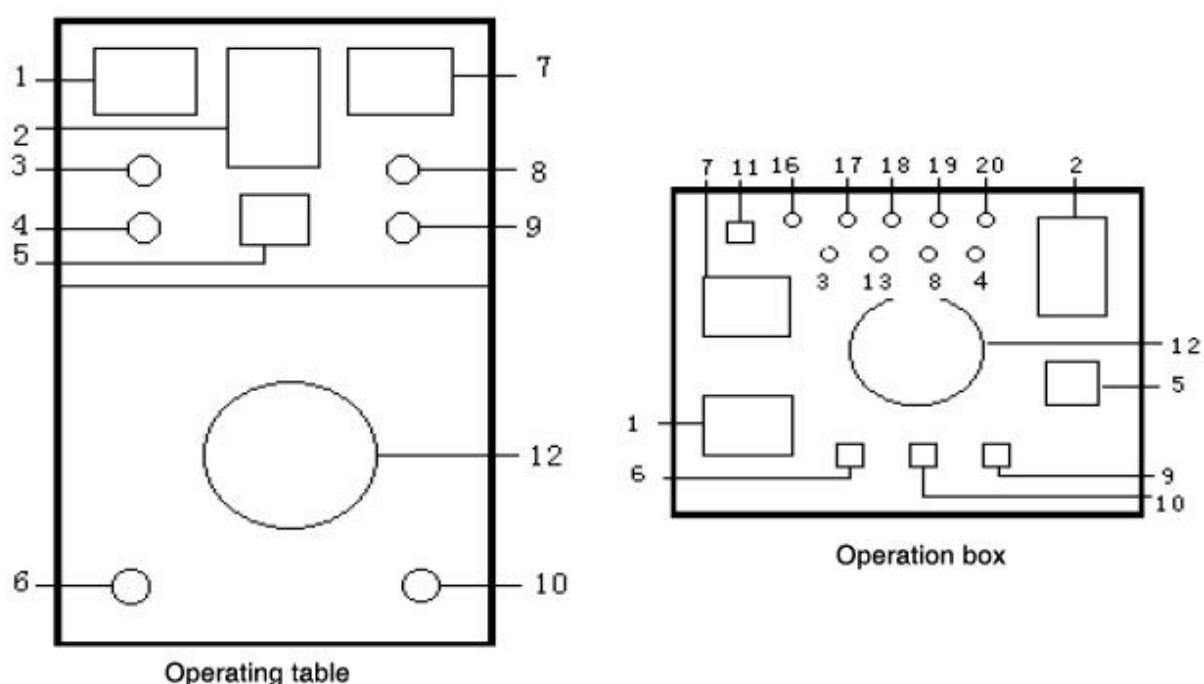
The series is our test transformer supporting equipment, the control box features easy maintenance, superior performance and safe use, beautiful appearance, durable, easy carrying and so on. It is necessary for power maintenance in the power supply enterprises, large factories, metallurgy, power plants, railways and other departments.

II Product Series

Model	Capacity (kVA)	Power supply			Output		Operating Mode	Estimated Weight	Remarks
		Phase	(V)	(A)	(V)	(A)			
2/220	2	1	220	50	0-220	10	Manual	14	
3/220	3	1	220	50	0-220	15	Manual	16	
5/220	5	1	220	50	0-220	25	Manual	18	
10/220	10	1	220	50	0-220	50	Manual	80	
15/400	15	2	380	50	0-430	37.5	Manual	90	
20/400	20	2	380	50	0-430	50	Manual	100	
25/400	25	2	380	50	0-430	62.5	Manual	120	
30/400	30	2	380	50	0-430	75	Manual	140	
50/400	50	2	380	50	0-430	125	Manual/Auto	160	
100/400	100	2	380	50	0-430	250		50	Separated voltage
150/3000	150	2	380	50	0-430	50		50	

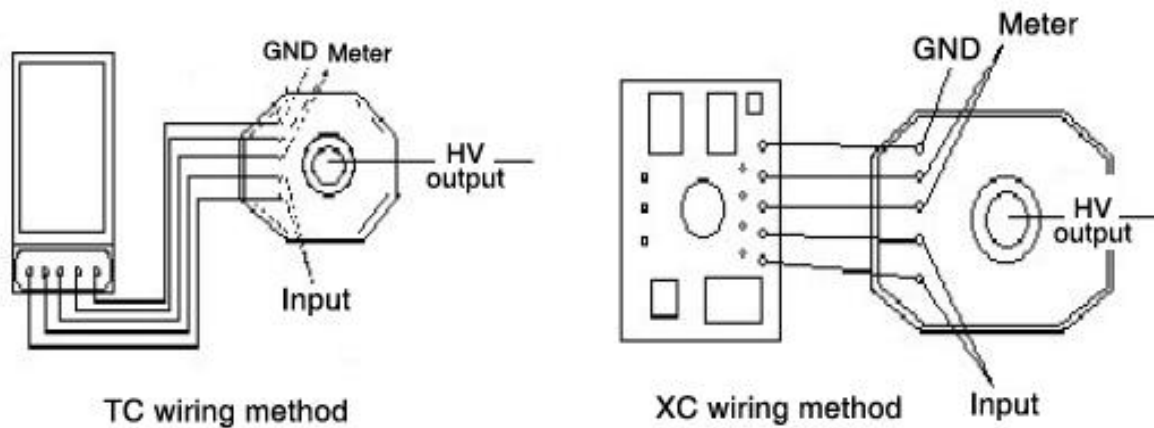
200/3000	200	2	380	50	0-430	65		50	regulator
250/3000	250	2	380	50	0-430	84	Auto	50	
300/3000	300	2	380	50	0-430	100	Auto	50	
Remark:Different type of products can be manufactured according to customer needs									

III Panel Outline



- 1 Voltmeter (PV) 2 Over-current Relay (KA) 3 Power indicating light (HG)
- 4 Alarm light (HL) 5 Time relay (KT) 6 Start Button (ST)
- 7 Ammeter (PA) 8 Feeding light (HR) 9 Timing button (SB1)
- 10 Stop button (SP) 11 Ground column 12 Regulator handle
- 13 Zero Light (HY) 17 18 Wiring terminal 19 20 Output terminal

IV External Wiring Diagram



V Operating Procedures

1. Arrange the site according to the relevant procedures, connected the wires, when necessary a person should be arranged for safety guidance.
2. Adjust the current relay (KA) according to the capacity and voltage level of the tested product.
3. Turn on the power switch, press the power feeding button, the regulator power supply lights will be off, power feeding light will be on, then start boosting test
4. Slowly clockwise the regulator handle (if it is the automatic type, press step boosting button) and pay close attention to the voltmeter (3KV per second speed is appropriate), when reach the standard withstanding voltage, press the time button, and watch situation of the test sample.
5. When reach the specified test time, the alarm (bell) will sound, indicating withstanding test qualified. At this time, counter clockwise the regulator handle (for automatic type, press drop down button) to put the regulator to zero position. And press the stop button to turn off the power.

6. In the process of boost or withstand voltage test, if over-voltage occurs, turn the voltage regulator counterclockwise (or press drop button) to return the voltage to the specified value.
7. During the test process, if the current meter indicates that the current exceeds the specified range, please immediately stop the boost to find out the relevant reasons and then test.
8. During the test, if there is short circuit, flash-over, breakdown and other over-current events, the current relay will work to stop so that the regulator automatically power off, which means the tested product failed to pass the test. Return the regulator to zero and reset the timing button to prepare operation next time

VI Operation Conditions

1. Ambient temperature: 0 ~ 40 °C
2. Altitude: <2000m
3. Relative humidity: <85%
4. No gas, steam, chemical dust and other explosive and corrosive media which seriously impact the insulation

VII Attention

1. When unpacking, check the electrical components and contact points if any damage and bad contact.
2. Before use check the electrical contact, especially the regulator carbon brush contact must be good.

3. Strictly follow the relevant operation procedures, don't use personally without security persons on site.
4. The equipment should be stored in a ventilated, dry, non corrosive gas place.

VIII Packing List

1	Control Unit	1 set
2	Test transformer	1 set
3	Test line	1 set
4	User Manual	1 copy
5	Inspection report	1 copy
6	Warranty card	1 copy