



Three-Phase & Single-Phase Transformer Instruction Manual



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1. Scope

This product manual briefly describes the basic structure, basic parameters, normal operating conditions, and usage precautions of the SG and SBK (ZSG) series three-phase dry-type (rectifier) transformers, serving as a guide for users in selecting and ensuring safe operation.

2. Reference Standards

3. Product Overview

A transformer is a static electrical device that uses electromagnetic induction to change voltage or current between two or more windings at the same frequency.

In SG and SBK type three-phase dry-type transformers, the transformer core and windings are not immersed in insulating liquid medium (transformer oil), but are in direct contact with air, using air convection for heat dissipation.

The ZSG type three-phase dry-type rectifier transformer is an important component of rectifier equipment (belonging to the dry-type transformer category). It, along with various rectifier devices, forms a rectifier circuit system. To convert alternating current (AC) to direct current (DC),

the rectifier transformer first transforms the voltage of the AC power grid into a voltage of a certain magnitude and number of phases, and then,

after passing through the rectifier device (rectifier unit), outputs the voltage to DC drive equipment.

4. Structure Introduction

three-column core is used, with the core material being cold-rolled silicon steel sheets, and the magnetic flux density 2 12000.

Gauss. 4.1 A

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4.2 The windings are made of SBECR double glass wire wrapped flat copper wire, OZ high-strength enameled wire, or copper busbar depending on the capacity.

4.3 Insulation class: Class B.

5. Basic Parameters

5.1 Applicable to circuits with voltages from 50Hz to below 1000V.

5.2 Fixed working hours: short-term working hours and long-term working hours.

5.3 The main capacities are shown in Table 1.

Serial Number	Specification Capacity	Serial Number	Specification Capacity
1	SG/1SBK-300VA	14	SG/1SBK-8000VA
2	SG/1SBK-500VA	15	SG/1SBK-10KVA
3	SG/1SBK-750VA	16	SG/1SBK-15KVA
4	SG/1SBK-1000VA	17	SG/1SBK-20KVA
5	SG/1SBK-1500VA	18	SG/1SBK-25KVA
6	SG/1SBK-2000VA	19	SG/1SBK-30KVA
7	SG/1SBK-2500VA	20	SG/1SBK-40KVA
8	SG/1SBK-3000VA	21	SG/1SBK-50KVA
9	SG/1SBK-3500VA	22	SG/1SBK-60KVA
10	SG/1SBK-4000VA	23	SG/1SBK-100KVA
11	SG/1SBK-500VA	24	SG/1SBK-150KVA
12	SG/1SBK-6000VA	25	SG/1SBK-200KVA
13	SG/1SBK-7000VA	26	SG/1SBK-3005KVA

5.4 The combination of rated power supply voltage and rated output voltage should be selected preferentially according to Table 2.

Rated Supply Voltage	Rated Output Voltage
1	SG/1SBK-300VA

6. Normal Use Conditions

Transformers can operate reliably under the following conditions:

6.1 The altitude shall not exceed 2500m;

6.2 Ambient medium temperature;

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- 6.2.1** The minimum temperature shall not be lower than -25°C;
- 6.2.2** The maximum air temperature shall not exceed +40°C;
- 6.3** Relative humidity: The average maximum relative humidity of the wettest month shall not exceed 95%; and the average minimum temperature of that month shall be +25°C.
- 6.4** The current and voltage waveforms approximate sine waves;
- 6.5** Locations protected from rain and snow erosion;
- 6.6** Locations free from significant shaking and impact vibration;
- 6.7** The medium is free from explosion hazards and contains no gases or conductive dust that could corrode metals or damage insulation.

7. Precautions for Use

7.1 Determine the appropriate capacity of the transformer

First, it is necessary to investigate the power supply voltage at the location where electricity is used, the actual electrical load of the user, and

the local conditions. Then, refer to the technical data on the transformer nameplate to select one by one. Generally, the transformer capacity, voltage,

current and environmental conditions should be considered comprehensively. Among them, the capacity selection should be based on the capacity,

nature, and usage time of the electrical equipment to determine the required load, and in this way, select the transformer capacity.

During normal operation, the electrical load on the transformer should be approximately 75% to 90% of its rated capacity.

7.2 It cannot be operated under extended periods.

Overload operation refers to the operation of a transformer exceeding the current value specified on the nameplate. Overload operation causes

the transformer temperature to rise, accelerates insulation aging, and reduces service life. Therefore, overload operation of transformers is

not allowed. Under special circumstances, the permissible overload operation time for a transformer for a short period of time is shown in Table 3.

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Serial Number	Multiples of Rated Load	Overload of Allowable Time
1	1.30	1 Hour
2	1.60	15 Minutes
3	1.75	8 Minutes
4	2.00	4 Minutes

7.3 It is strictly forbidden, to get damp.

All electrical products will experience reduced insulation increased leakage current, and even malfunction after becoming damp. SG, SBK, and ZSG three-phase transformers are for indoor use and must not be installed outdoors. Transformers that have become damp due to water damage, rain, wind, snow, etc., must undergo drying treatment.

7.4 To ensure the normal operation of the transformer, the following tests should be performed regularly;

7.4.1 Temperature Test: The temperature is a crucial factor in determining whether a transformer is operating normally.

7.4.2 Load Measurement: To improve transformer utilization, reduce energy loss, and prevent overload operation,

the transformer's true load-bearing capacity must be measured during operation. The measurement should be performed directly

using a clamp meter. The current value should be 75-90% of the transformer's rated current; exceeding this indicates overload

and immediate adjustment is necessary,

7.4.3 Voltage Measurement: The voltage fluctuation of the transformer should be within of the rated voltage. If it i

exceeds this range, tap adjustment should be used to bring the voltage within the specified range. Generally, a voltmeter is used to

test the secondary voltage separately.

7.4.4 Insulation Resistance Measurement: To ensure the transformer remains in normal operating condition, insulation resistance measurement must be performed to prevent moisture absorption and accidents. The transformer insulation measurement should be conducted under power-off conditions using a megohmmeter. The measured resistance value should not be lower than previously measured values.

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JMB.DG.BK.JBK.BKC Series Control Transformers

1. Overview

The JMB, DG, BK, and JBK C series B K control transformers are among the earliest electrical products launched by our factory Utilizing imported materials and rigorous design, they feature excellent performance, reliable operation, and wide applicability.

This series of transformers is designed for vertical installation and can operate continuously at its rated capacity. They are widely used as control power supplies for general electrical components in machine tools and mechanical equipment, as well as indicator light power supplies for bcal lighting.

2. Product Specifications and Installation Dimensions:

Serial	Specifications (VA)	Rated Input Voltage (V)	Rated Ouput Voltage (V)	External dimensions (L x W x H) (mm)	Installation dimensions (L x W) (mm)
JBK	40	220 (361)	6.	80 x 77 x 90	55 x 50
	63		(6.3)	80 x 85 x 90	55 x 50
	100		12	86 x 95 x 92	64 x 70
	160		24	98 x 105 x 110	83 x 87
	250		36	98 x 110 x 113	82 x 87
	400		110	120 x 115 x 120	102 x 90
	630		127	150 x 120 x 140	128 x 92
	1000		127	180 x 220 x 115	155 x 160
BKC	1600	(399)	220	57 x 82 x 100	155 x 182
	25	380 (380)	127	70 x 88 x 100	48 x 68
	50		220	80 x 100 x 105	50 x 70
	100		220	86 x 100 x 125	57 x 83
	150		380	105 x 100 x 136	56 x 84
	250		380		78 x 83

BK Series			JBK Series
Serial	Overall Dimensions	Instalation Dimensions	Instalation Dimensions
25 VA	79 x 72x 86	64 x 47	150 x 160 x130
50 VA	87 x 88 x 96	70 x 57	
100 VA	105 x 94 x 110	84 x 68	
150 VA	105 x 100 x 110	84 x 74	160 x 170 x 135
200 VA	105 x 108 x 110	84 x 84	
250 VA	120 x 116 x 134	95 x 80	130 x 210 x 155
300 VA	120 x 126 x 134	95 x 90	
400 VA	134 x 137 x 150	110 x 100	210 x 230 x 175
500 VA	134 x 150 x 150	110 x 110	
700 VA	155 x 155 x 164	125 x 114	218 x 290 x x185
1000 VA	155 x 170 x 164	125 x 128	
1500 VA	175 x 185 x 195	143 x 130	
2000 VA	175 x 200 x 195	143 x 140	260x 330 x235
3000 VA	205 x 220 x 230	170 x 160	
4000 VA	230 x 210 x 340	192 x 155	280 x 350 x 230
5000 VA	230 x 210 x 340	200 x 140	

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3. Applicable Environment

This transformer can operate reliably under the following condiiyions:

1. The altitude high pressure does not exceed 2500M.
2. Ambient air temperature: not exceeding 400C and not lower than 250C;
3. Relative humidity: The average maximum relative humidity for the month of electric humidification is 90%.
4. In a medium without explosion hazard, and in a place where there are no gases or conductive dust that corrode metals or damage insulation.
5. Places protected from rain and snow.

3. Applicable Environment

1. Open the packaging box, take out the instruction manual and other spare parts and the machine, and carefully read the Instruction Manual to use it correctly.

the transformer reliably in a well-ventilated and heat-dissipating location, ensuring it is protected from vibration and corrosion.

2. Secure

3. Before use, the circuit must be tested to ensure that the mains voltage is the rated input voltage. The allowable deviation is 25%. If it greatly exceeds this range, a voltage regulator should be added at the front end to ensure the reliable operation of the transformer.

4. Select appropriate cross-section wires and connect them according to the markings. After checking that the load distribution is correct, the transformer

can be powered on and will begin operation. Selection of wire cross-section is required,

Rated Input or Output Current (A)	Cross-Sectional Area of Copper Conductor (mm ²)
5	.75
5-10	1.00
10-16	1.50
16-25	2.50
25-32	4.00
32-45	6.00
45-63	10.00
63-80	16.00
80-110	25.00
110-130	35.00
130-170	50.00
170-220	70.00
220-270	95.00

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Rated Current Calculation

$$\text{Current} = \frac{\text{Rated Capacity (VA)}}{\text{Rated Output (Input) Voltage (V)}} \text{ A}$$

5. Things to Note

1. Before purchasing, estimate the total capacity of your appliances and select a transformer with sufficient capacity. Ensure the transformer will not burn out during instantaneous startup.
2. This transformer is designed and manufactured strictly in accordance with relevant national standards. When using a dual-winding transformer with multi* control voltages (i.e. tapped type), such as BK or JMB transformers, the capacity should be reduced proportionally to the highest voltage of the primary and secondary windings, meaning the current should not exceed the calculated value of the highest voltage. Transformers with winding power division, the of each winding should be strictly to the transformer. See Appendix I winding structure and characteristics.
3. Before installation, carefully check whether the data listed on the nameplate meets your requirements. Only after confirming that everything is correct can you proceed with the installation and use.
4. After operation, the transformer core and coils will heat up (but the temperature will not exceed 80°C), which is normal. If the temperature rise exceeds 80°C or even smokes, the power switch should be turned off, and the capacity of your electrical appliances should be checked and adjusted.

6. After-Sales Service



We proudly include after-sales support with live remote and onsite technical training for all equipment that we offer. Our in-house factory-certified technicians are committed to providing our clients with the highest level of technical support and service.

If you are in need of technical support with your Romanoff purchase, please contact us at 631-842-2400 or email us at service@romanoff.com

7. Packing List

1. One product
2. A copy of the instruction manual
3. A warranty-card
4. A certificate of conformity

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Control Transformer Winding Structure and Characteristics:

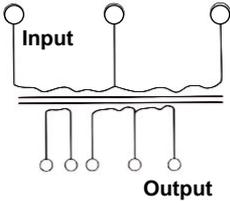


Figure 1

The dual-winding tapped characteristic is shown in Figure 1. The primary and secondary windings of the transformer are tapped with the same specification wires to change the voltage value, and the high voltage setting is used as the rated value. The capacity decreases proportionally as the voltage decreases.

When both voltages are used at the output terminal at the same time, the current value cannot be

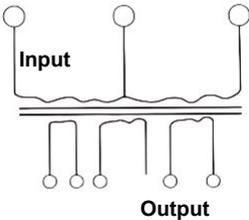


Figure 2

As shown in Figure 2, the primary winding is a single winding, while the negative winding has several windings. Each winding is an independent load, and therefore each winding must not exceed

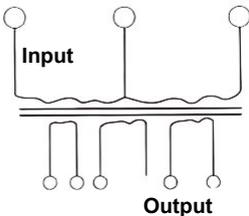


Figure 3

The characteristics of the power-sharing hybrid winding are shown in Figure 3. It has the above two characteristics.

For example, when the primary 380V is changed to 220V, the transformer capacity is 0.578 times the original, and the current in the output winding must not exceed 0.578 times the original value.

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Certificate

This product has passed inspection and is approved for shipment.

Inspector

Warranty Card

Date	Maintenance content	Replacement accessories	Maintenanceman

This machine is covered by a one-year warranty (from the date of purchase) and includes lifetime maintenance. Users can contact after-sales service with this warranty card and invoice.

Warranty coverage:

1. Within one year from the date of purchase, our company will be responsible for free repair or replacement of any parts that are proven to be product quality problems.
2. Damage that occurs during the installation and use of the machine in accordance with the instruction manual.
3. Faults caused by professional repair or installation.

The following situations are not covered under warranty:

1. Damage caused by improper installation.
2. Damage caused by improper wiring.
3. Non-professionals perform repairs on the entire machine or its parts.
4. Failure to install and maintain according to the instruction manual.

Note: 1. If the damage occurs outside the warranty period, please contact the supplier or our company. Our company will provide you with the damaged parts and charge the cost price. 2. Damage caused by spontaneous combustion disasters (such as earthquakes, fires, etc.) is not covered under warranty.

Need support? Contact



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