V. Cautions in Maintenance

1. The daily average allowable overvoltage should be less than 110%. Ensure that each phase remains balanced. Notably, circuit voltage can sometimes increase under light load conditions, particularly at night. When a capacitor operates under continual overvoltage, its kvar capacity increases proportionally to the square of the voltage increase. Consequently, this leads to a reduced lifespan due to increased losses and accelerated degradation.

2. The temperature of the capacitor enclosure must not exceed 55°C (with an ambient temperature limit of 45°C). If the ambient temperature exceeds 45°C, the enclosure must be cooled using forced air cooling or other appropriate methods.

3. Check the connector of the electric switch used in a capacitor circuit at least once a year. If the connector is not in proper condition, the capacitor may operate in single-phase mode, which could shorten its lifespan. This occurs because an incomplete connection allows high-frequency vibration voltage to affect the capacitor.

4. There is an error in a circuit if over current, which is 120% higher than the rated current of capacitor, continues to run. Check leading power factors. If there is no error, analyze a current wave form. Installation of a device to reduce harmonics is recommended if an error is found.

5. Inspect current and voltage of a circuit regularly (three phase balance).

Cleaning insulators: at least once a half-year (depending on contamination)

Fastening terminals: at least once a quarter (depending on vibration)

Temperature increase: at least once a month (depending on status of load change)

Capacity and insulation: at least once a year. For insulation resistance, higher than 1000MΩ between a terminal and a ground connection (per a unit) is sufficient.

Warranty Period

A product can be exchanged free of charge within 18 months if it is decided that a defect was caused by errors in production process.

BTB ELECTRIC REALVALUE FORLIFE

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INSTRUCTIONS FOR USING

Dry Power Capacitors

BTB ELECTRIC



- Rated voltage: 50/60Hz, 250~525V
- Connection: 3-phase Internal Delta
- Capacitor capacity: 5.0~37.5kVAr
- Maximum permissible current: 1.5In
- Temperature Category: - 25°C to +55°C
- Impregnation: Biodegradable soft resin (non PCB)
- Standard: IEC/EN 60831-1&2

Please read this manual carefully for complete installation and safe use. Our company strives to adhere to a quality assurance system based on ISO 9001 requirements and to deliver the highest quality products to ensure customer satisfaction.

I. Certificate of Inspection Acceptance

1. Electrostatic Capacity: within -5 - +10% of the rated capacity

2. Unbalance Factor between Phases: less than 108%

3. Withstanding Voltage between Terminals: apply for 10 seconds with 2.15 times of the rated voltage.

4. Between Terminal Package and Case: apply 4,000VAC for 60 seconds for a product with higher than 240VAC. Apply 2,500VAC for 60 seconds for a product with lower than 240VAC

5. Insulation between Terminal Package and Case: higher than 1,000M & at DC 500V

6. Loss Factor (tanδ): less than 0.15% at the rated voltage 50/60Hz

II. Do not install product at the following locations

1, A location with ambient temperature exceeding -25^0C~$+55^0C$

2, A location affected by salinity

3, A location affected by vibration

4, A location exposed to rain or water

5, A location with high moisture

6, A location affected by dew condensation

7, A location with iron and dust

8, A location exposed to direct sunlight

9, A location containing corrosive gas

III. How to install a capacitor

1. The product must be fixed with an M12 bolt when installed, tighten with appropriate tightening force (less than 25kgf/cm3. M12 bolt with additional grounding function.

2. Do not place the product on its side or hang it upside down as it is designed to install on the ground or mount on a wall.

3. If they are used as a group, the distance between unit capacitor and from the ground shall be more than 30mm and 500mm, respectively for good ventilation.

IV. Connection method

1. Do not apply excessive power to connections or joints of electric wires.

2. Connection of Wires:

2.1. Peel off a layer of paint about 13mm from the end of the wire and then thread it through the holes and tighten the bolts or use a cosse pin (for connection B).

2.2. Connect the cable to the appropriate size head cos wire before connecting the Capacitor (for fig C connection).

3. Connection of Y-D induction starting motor:

Without proper wiring as shown in the picture below, a condenser may be destroyed.

4. Opening at no-load

If only a capacitor is connected, it can be damaged by degradation destruction due to effects of excessive leading power factor, over voltage and harmonics. Connection shall be made in order for a capacitor to be isolated at the same time when load is isolated from the power. In addition, when several capacitor are installed, it is recommended to control the number of capacitors in operation by installing a switch according to load capacity and power factor.

5. Problems associated with installation exceeding power factor or capacity As installation exceeding power factor (100%) may cause excessive voltage increase due to negative voltage drop by leading power factor, it is recommended that the capacitor shall be installed at 90-95% of power factor.

6. Disconnect the connection

6.1. Before disconnecting the lead from the capacitor, the capacitor must be disconnected from the mains for more than 3 minutes. Need to measure the voltage across the capacitor before removing the lead from the capacitor.

6.2. When the discharge resistance of the capacitor is damaged, it will be discharged through the grounded discharge rod by someone with a high level of electrical expertise.