

# Engineer's Specification :

## Sephco Mobile Test & Exercise Load Banks WA Series

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### 1. Generator Load Banks WA SERIES

Sephco WA series load banks are completely self contained, mobile, incorporating resistive elements, load contactors for each load group, individual load group circuit breakers, load bank protection devices, main load bus, fan cooling systems, malfunction detection system, unit controller, and (IP55) type segregated control enclosure. The load bank is manufactured under ISO9001:2008 quality assurance completely weather-proofed for outdoor installation.

Sephco WA series load banks are generally used for on-site testing and commissioning of standby or primary power generators.

### 2. Size & Model No.

AS specified

### 3. Load Bank Design

The load bank is completely self contained, free standing unit, incorporating all resistive elements, load contactors for each load group, individual load group circuit breakers, load bank protection devices, main load busbar, auxiliary terminals, fan cooling systems, malfunction detection system, unit controller, remote control facility and IP55 type segregated control enclosure.

### General Construction

#### Resistors

Load resistors are fully sealed stainless steel finned, stainless steel sheath type, immersion proof and vibration proof, impervious to heavy rain or salt air conditions, constructed to IP65 (NEMA 6). Resistors are calibrated to within 5% of their rated value, tested to 2kV and individually grounded. Resistor connections are light gauge nickel-plated copper bus links, connected in groups of 50kw maximum and arranged to minimize strain on resistor terminals. All connections of the resistor groups to the corresponding switchgear is made using 110°C rated multi-stranded flexible cable.

#### Construction

Load bank's body panels and control compartment is constructed from 2mm (Zincanneal) zinc-impregnated steel (Patented), incorporating removable panels for access to resistors. The Load Bank shell is mounted onto a fully hot dipped galvanized chassis frame with forklift pockets. Air inlet and outlet are fully protected by grills having 12mm X 25mm maximum opening. Air cooling is vertical flow discharge, so adjacent equipment and personnel are not affected. The control and electrical cabinet is incorporated as an integral part of the load bank but segregated from the resistor section.

Load bank switchgear enclosure is constructed with full gutter surround, fitted with lift off type hinges, security type locks and wire reinforced neoprene door gaskets

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### **Finish**

All structural parts, frames, resistor supports are hot dipped galvanized. All screws, nuts and bolts are #316 stainless steel. Painting of metal surfaces is two-pack polyurethane marine enamel.

### **Weatherproofing**

Load bank is designed for outdoor use, totally weather proofed to IP55, (resistors are hose proof) incorporating stainless steel type immersion proof resistors. The design of the load bank ensures complete resistance to water and moisture buildup.

### **Anti Corrosion**

All metal panels are treated prior to fabrication with a hot zinc coating process. Final painting and finish utilizes a triple coat of two pack polyurethane marine enamel. Metal structures such as the load bank chassis, resistor supports and lifting bars hot dipped galvanized. External screws and bolts are #316 stainless steel material.

### **Cooling Fans**

The load bank's cooling design ensures that the control enclosure does not rise above 30°C above ambient at full load. Fan motors are rated at 940 RPM IP55, each protected by thermal overloads and circuit breakers.

### **Safety Interlocks**

Load bank incorporates a triple interlock protection system for each fan motor fitted, protection against fan failure, airflow restriction, high temperature and fan reversal.

### **Fan Run On- Cool Down**

An automatic fan run-on for a period of five minutes automatically activates on load dump, fan shut down signal or on tripping of the fan interlock protection system.

### **Switchgear and Auxiliaries**

All load groups are evenly balanced and switched by suitably rated mechanical contactors. Each load group is protected by a dedicated re-settable 22kA circuit breaker.

**4. Load Bank Remote Controller Type MC12PMB**

The load bank includes a digital controller with touch type keypad and LED load display, which provides the following functions.

- Digital kilowatt display of load value
  - Touch key button operation
  - Fan "Start"- "Stop" buttons
  - Kilowatt "UP" – "Down" buttons
  - Enter (Master) button
  - Emergency "Stop" button
  - LED Display:-
  - LED - Load Bank "ON" indication
  - LED - Load Bank "COOLING FAULT" indication
  - LED - Load Bank "FAN RUN-ON" indication
  
  - Monitoring of the load bank's fan interlock systems, such as thermostats, airflow switches and fan motor thermal overload devices
- (a) Communication and 12-18VDC power supply to the control panel.
  - (b) Cooling fan start-up
  - (c) Cooling fan automatic shutdown
  - (d) Manual load dump
  - (e) Variable load adjustment from 0%-100% of generator rating in 5kW increments