

TECHNICAL SPECIFICATION FOR 30V 100AH VRLA BATTERIES
LEAD ACID TYPE & CHARGER UNIT

Title : 30Volts DC, 100AH VRLA/Maintenance free Sealed Lead Acid Battery Bank with float cum charger.

Introduction: The battery bank is required for providing reliable control supply for HT Switch Gear and Control Systems for 270MW, 02-block to supply power.

Scope: This specification covers the design, manufacturing, assembly, testing at manufacturer's works and supply of battery unit complete in all respect for successful and trouble free operation of systems in the 270MW, 02-block

Quantity: 1 unit

Technical Requirements: The equipment shall essentially consist of

Float Cum Boost Charger

Scheme : FLOAT CUM BOOST CHARGER
Type : FULL WAVE, HALF CONTROLLED.
Rating : 30V/10A (suitable for 30V/100AH VRLA battery of 15 cells)

AC INPUT

Voltage : 240 Volts +/- 10% AC
Frequency : 50Hz, +/-5%
Phase : Single Phase.

DC OUTPUT

Float Voltage: 33.75V DC adjustable by +2% -5%
Boost Voltage: 34.5 V DC adjustable by +2% -5%
Regulation : Better than +/- 1% of the set value.
Ripple : Less than 500m Volts rms.
Current : 10A

System O/P Voltage: Max.34.5V DC +0.5V (At Load Terminals)

Efficiency : Better than 65% at full load.

INDICATIONS : LED indicators shall be provided for the following indications with audio alarm.

- a. Mains ON (Neon Lamp)
- b. Charger ON
- c. DC over Voltage
- d. DC under Voltage
- e. Battery Reverse Polarity

METERS : Following Analog type meters of 72x72mm with 90 Deg. Deflection shall be provided in the system for measuring the respective parameters.

- i. DC Voltmeter with selector switch

- ii. DC Ammeter
- iii. Battery Charge/Discharge Ammeter.

PROTECTIONS: Following protections shall be provided.

- a. AC Input Circuit Breaker
- b. Fast acting semiconductor Fuse for the Rectifier Bridge
- c. DC over voltage cutback
- d. DC over Load Protection
- e. DC output Circuit Breaker.
- f. Battery Input Fuses
- g. Blocking Diode

Controls& Switches: The following Controls and switches shall be provided in the system.

- a. Float voltage adjust potentiometer
- b. Boost Voltage adjust potentiometer
- c. Auto/Float/Boost selector switch
- d. AC input Circuit Breaker
- e. DC output Circuit Breaker
- f. DC Voltmeter selector switch
- g. Battery test position push button
- h. DC voltmeter push button

Special features: The following features shall be provided in the system.

- a. Soft start on DC side
- b. Class F insulation for all magnetics
- c. Automatic voltage regulation using digital controlled logic.
 - i. Automatic Float/Boost change over based on current drawn by the battery.
- d. Smoothing filter Circuit to limit ripple

GENERAL

a. Cabinet : Free standing steel cabinet, easy access for installation and commissioning and cable entry at bottom.

b. Paint : Siemens Grey (RAL-7032)

c. Protection : IP-30

d. Temperature : 0 - 50 deg.C

Range of operation

e. Relative humidity : 0% to 95% non-condensing.

BATTERIES : 30 Volts, 100 Ampere hour maintenance free , Valve Regulated lead Acid batteries in factory filled condition along with MS Racks and suitable connectors housed at the bottom compartment of the cabinet.

Other Requirements: Equipment shall be guaranteed for the period of 3 years. Batteries and battery charger shall be manufactured as per the relevant Indian Standards. Final inspection & Testing of the equipment shall be done in presence of BHEL representative.