Battery Manufacturing Unit (Semi-Automatic)

The Output capability of this unit is 100-120 Batteries per day. Here we are using semi-automatic grid casting machines for grid casting. These machines are producing grid by pressure casting method and hence the tensile strength of the grid increases considerably. The pasting section is again manual pasting only, however it can be upgraded by automatic pasting machines as desired by the customer. Electrical furnace with temperature control feature is provided for better results. A lead connectors brushing machine is also a add-on in this section to increase the productivity of the plant. Chargers used here are high grade SMPS chargers with 6 channels of 20 batteries each up-to the capacity of 250AH. DM water plant of 1000 Ltr/Hr for acid preparation or dilution of acid is required here. Curing chambers for the same are provided in the plant.

SEMI-AUTOMATIC GRID CASTING SECTION

Semi-automatic Grid casting machines: These Grid casting machines are mounted with Grid Moulds and the casting of grids takes place by the pressure casting method. The Moulds can be designed to cast Grid of any dimensions. These are specially designed to give the best application specific Grid plate. The capability of the machine is to cast 20 grids per minute. We can get the grids for all type of Flat Plate batteries, Tubular batteries used for various applications like Auto, Solar, Inverter, E-rickshaw, Traction etc.

Electric Furnace

- Frame and external jacket from mild steel
- Upper cover fixed by screws and equipped by handles
- Upper part of crucible protected by cast-iron ruff
- Two rows of light-weighted bricks and crucible pedestal on furnace bottom
- Walls of furnace isolated by mineral fiber insulation and light-weighted bricks
- Back-folding lid isolated by twisted mineral fiber insulation rope
- Emergency drain from refractory concrete in furnace bottom
- Heating spirals on ceramic tubes
- Controller HT40 enables controlling to standard value
- Standalone switchboard
- Armored cable between furnace and switchboard
- Residual current device, ampere meters
- Thermocouple type S
- Furnace occupied by contactor
- Independent limit unit
- Operating Temperature Max-800C

Multi Channel Formation CD Charger

Input Voltage to Cabinet	3 Phase, 415Vac +/-10%, 50Hz, 4 wire
Nominal Output Voltage	360Vdc
Input Power require (KVA)	Approx 85 KVA
Nominal Output Current	30 Amps for each charger circuit
Control Current range	10% – 100% of rated current
Operating Voltage range	36V to 360V DC
No. of circuits per cabinet	6 independent circuits in single cabinet (For 20 batteries of 12V per circuit)
Common features	
Accuracy	+/- 1.0% of rated, For current & Voltage
Output Current Ripple	10% rms of rated current at rated output & nominal AC input, on battery Load.
Convertor configuration	3 phase full wave full control SCR bridge
Output Current adjustment	Phase angle control of SCR's
Current Charging Profile	Continuous charge, intermittent charge with ON/OFF sequence, Continuous Discharge
Program Mode (functions)	Charge – Discharger at Constant current; Constant voltage, rest, Discharge at constant current.
Termination of Program Steps	Time, Ah, Voltage
Display & Indications	CHARGE & DISCHARGE 'ON' indication
System Topography	Rectifier cabinet will consist of Switchgear, Transformer, Convertor circuit
Protections	Single phasing protection, HRC fuse at the output of each circuit. Solid State overloads protection by sensing current f/b. R-C Snubber for stored energy protection.
Power Fail	In case of Power fail, the circuit will resume from the point of interruption.

CURING CHAMBERS

MAIN ADVANTAGES

CHAMBER
AIR FLOW
CONCEPT

1) Maximum flexibility for parameters programming during curing and drying process it is possible to obtain 3BS (tri-basic sulphate) or 4BS (tetra-basic sulphate) with specific program;
2) Specific 4BS cycle without the use of steam for fine crystals surface with this configuration you obtain reduction for formation time and energy cost. Temperature up to 70 Degree with 95% RH.
3) High adhesion of active mass to the grids thanks to the control of the ramp of temperature during each step to avoid thermal shock and the pulse injection of fresh air for constant release of humidity from plates to create the good microstructure between PbO and grid layer.
4) Reduced energy consumption and optimization of exothermic reaction during the oxidation.
5) All kind of plates are cured in our chamber: from SLI to VRLA, Industrial and Traction;
6) Our Oven also using different grid technology like expanded metal, gravity casting, continuous casting.
7) Automatic Exhaust & Cooling system for the excess of temperature generated from exothermic reaction
8) Air speed control –In our oven air speed control regulate the air flow in each step of the process. Advantage is less power consumption.
9) Humidity control system to keep the required level of humidity in the air with the injection of water to avoid thermal shock on plates
10) Ramp facility for process temperature
11) Drying cycle with forced air changing to reduce the process time and assure the final moisture
12) Control board with PLC and panel operator for easy programming;