

India has built enormous capability in power generation, transmission, and distribution across coal, gas, hydro, nuclear, diesel, solar, wind, and green hydrogen.

Yet the next phase of India's growth depends on one missing pillar:

Large-scale energy storage — to save, stabilize, and reuse power continuously.

To integrate renewables, stabilize the grid, power industries, electrify transport, and support rural-to-urban manufacturing growth, India requires approximately 250 GWh of Battery Energy Storage Systems (BESS) over the coming decades.

This is national infrastructure, not optional capacity.

THE MANUFACTURING ANSWER → Scalable manufacturing block to replicate toward India's ~250 GWh BESS need of hour...

@ very competitive low costs & proven OEMS, from top 105 Chinese & other overseas oems...

One of them,

1.5 GWH BESS MODULE & PACK PRODUCTION LINE [ PACK TO RACK TO CONTAINERS can be a quoted , as a separate System Integrator using BMS as per the end-users/clients specific requirements ]

We present a complete, automatic-semi automatic Cell → Module → PACK manufacturing solution, designed specifically to serve India's grid-scale BESS requirement.

### Production Overview

- Annual Capacity: 1.5 GWh
- Speed: 10–12 PPM
- Operations: 300 days, 8 hours/day
- Battery Chemistry: LiFePO<sub>4</sub> (LFP)
- Cell Type: Imported Prismatic Cells
- Cell Ratings: 280 Ah / 314 Ah, 3.2V

- Configurations Supported: 1P13S / 1P16S

**FULL SCOPE OF SUPPLY – COMPLETE & EXHAUSTIVE  
MODULE LINE – 16 MAJOR WORKSTATION SCOPE**

**1. Automatic Cell Loading & Positioning System**

- Automatic cell loading process
- Material cutting board guide & initial positioning mechanism
- Six-axis KUKA robot (KR210/KR300) with robot base
- Robotic gripper with pallet handling
- Vision system (Hikvision)
- Panasonic laser rangefinder
- Siemens PLC & customized electronic control system
- Full fencing & safety protection

**2. Battery Cell Online Conveyor System**

- Servo motor & reducer drive system
- Synchronous belt with customized tooling
- Heavy-duty line body rack
- Siemens PLC & electronic controls

**3. Scan Code, OCV Test & NG Rejection Station**

- Barcode scanning with single-axis servomechanism
- KEYENCE SR-series barcode scanners
- OCV testing mechanism
- Internal resistance measurement (HIOKI BT3562A)
- Gantry grabbing mechanism
- Automatic OK feeding & cache system

- NG cache line with segregation
- Polarity detection mechanism
- Battery cell flip mechanisms
- Siemens PLC, industrial computer & safety enclosure

#### 4. Battery Cell Offline Conveyor

- Servo motor & reducer
- Synchronous belt with tooling
- Line body rack
- Siemens PLC & electronic control system

#### 5. Cell Stacking Workstation

- Automatic stacking workbench
- Dual stacking slides with fixtures
- Six-axis KUKA robot with customized gripper
- Robot base & safety design
- Siemens PLC & electronic control system

#### 6. Pressing Workstation

- Multi-station pressing tables
- Electric cylinder pressing mechanisms
- Six-axis KUKA heavy-payload robot (KR300)
- Automatic barcode scanning & printing
- NG trolley handling
- Safety fencing & protection
- Siemens PLC & industrial all-in-one computers

## 7. Pole Photography Inspection Workstation

- Fully enclosed photo inspection station
- Vision inspection system (Hikvision)
- Industrial computer (Advantech)
- Dedicated electronic control system

## 8. Insulation & Withstand Voltage Test Workstation

- Enclosed testing station
- High-voltage insulation & withstand testing
- Repower / Depp test systems
- Advantech industrial computer
- Electrical control system

## 9. Laser Cleaning Workstation

- Enclosed laser cleaning station
- 200W MOPA laser source
- Precision galvanometer (ZBTK)
- Vision positioning system
- Explosion-proof dust collector (Villo)
- Advantech industrial computer & controls

## 10. CCS Installation Station

- CCS placement & inspection
- Barcode scanning (Honeywell)
- Industrial all-in-one computer

## 11. Laser Welding Workstation

- Enclosed welding station
- Ring-spot laser source (Raycus)
- Precision welding galvanometer (ZBTK)
- Welding tooling & fixtures
- Vision positioning system
- Panasonic rangefinder
- Chiller system
- Explosion-proof dust collection
- Welding control system & industrial computer

## 12. Manual Welding Slag Cleaning & Re-Inspection

- Explosion-proof industrial vacuum cleaner (Villo)
- Manual visual & quality re-inspection

## 13. End-of-Line (EOL) Module Testing

- Barcode scanning
- EOL electrical & functional testing
- Repower / Depp EOL test system
- Industrial computer with display

## 14. Module Conveyor & Reflow Line

- Assembly line pallets
- Double-layer reflow conveyor
- Lifting reflow machines
- Siemens PLC & electronic controls
- Heavy-duty material racks

## 15. Module Offline Handling

- Gantry crane system
- Customized spreader for module lifting

## 16. Complete Line MES System

- Full MES traceability system
- Cell → Module → PACK genealogy
- Process data logging & quality analytics
- Investor & audit-ready digital records

## PACK LINE – 8 MAJOR WORKSTATION SCOPE (WITHOUT TOOLS)

### 17. Lower Box On-Line Loading

- KBK hoisting system with customized slings

### 18. Water Cooling Plate Air-Tightness Testing

- Barcode scanning
- Air-tightness tester (Jinke / Harris)

### 19. Lower Box Gluing Station

- Automated glue dispensing machine
- Five-gallon glue system
- Integrated control system

### 20. PACK EOL Electrical Testing

- Barcode scanning
- EOL test cabinets
- Repower / Depp test system

- Industrial computer with display

## 21. Whole PACK Air-Tightness Testing

- Barcode scanning
- Air-tightness tester (Wanyi)

## 22. PACK Offline Handling

- KBK hoisting system with customized slings

## 23. Charging & Discharging System

- High-power charge–discharge machines (Repower)
- Formation & capacity validation

## 24. PACK Roller Conveyor Line

- Heavy-duty pallets (104 PACK compatible)
- Power roller conveyors (800 kg capacity)
- Lifting mechanisms
- Siemens PLC & electronic controls
- Material racks...