



Whitegoods Manufacturing & Distribution – AI ERP TicketingOS

Coolers · Air Conditioners · TV · Washing Machines · Heaters · Fans

Batch production · Dealer network · Warranty management · Last-mile service

1. Master Whitegoods Execution Flow (Batch/Serial-Driven)

ID	Department	Process	Activity	Action	Progress %
W001	Sales				
ORDER	Customer PO (B2B / retail / e-com)	5			
W002	Procurement	RAW MATERIAL	PO to supplier	Plastic, metal, PCB, compressor, glass, copper	10
W003	QA/QC	INWARD	Material inspection	Electrical safety, dimension, visual	12
W004	Inventory	STORE	Bin allocation	Batch/barcode, serial# assignment	15

ID	Department	Process	Activity	Action	Progress %
W005	Production	WORK ORDER	Job card release	WO generated for assembly line	20
W006	Production	SUB-ASSEMBLY	Component assembly	PCB mounting, motor fitting, compressor brazing	35
W007	Production	FINAL ASSEMBLY	Complete product	Cabinet assembly, wiring, gas charging (AC/cooler)	50
W008	QA/QC	IN-PROCESS	Functional test	Cooling test, leakage current, noise, vibration	60
W009	Production	PACKING	Packing & labeling	Carton, barcode, manual, remote	70
W010	QA/QC	FINAL INSPECTION	AQL sampling	External defects, accessories, packing quality	75
W011	Warehouse	FG STORAGE	Finished goods	Palletisation, FIFO by batch	80
W012	Distribution	ORDER PICKING	Pick & pack	Barcode scan, dispatch to dealer/retailer	85
W013	Logistics	DISPATCH	Transport	GPS tracking, e-way bill	90
W014	Service	INSTALLATION	Home delivery & install	For AC, cooler, washing machine	95
W015	CRM	WARRANTY	Registration & claims	Serial# linked, spare parts dispatch	100

2. Product-Specific Manufacturing & Distribution Workflows

Air Conditioner (Split / Window)

Outdoor unit: compressor brazing → condenser coil → fan assembly → gas charging → testing.
Indoor unit: evaporator → PCB → blower → remote pairing → packing.

Television (LED/LCD)

Panel incoming → PCB assembly → backlight mounting → bezel fixing → software flashing → display calibration → packing → drop test.

Washing Machine

Stator winding → tub assembly → motor mounting → controller programming → water inlet test → spin balance → packing.

Cooler / Heater / Fan

Motor winding → blade assembly → body moulding → pump fitting (cooler) → heating element (heater) → safety test → packing.

Distribution Network

Factory warehouse → regional hub → distributor → retailer → end customer (with installation).
Reverse logistics for returns/exchange.

Critical Quality Control Points

- **Electrical safety:** Hi-pot test, grounding continuity, leakage current.
- **Refrigeration circuit (AC/cooler):** Vacuum & gas charge accuracy, no leak (electronic sniffer).
- **Mechanical:** Vibration, noise (dB), spin balance (washing machine).

- **Packaging:** Drop test (1 corner, 3 edges, 6 faces), ESD protection for PCBs.
- **Warranty returns:** Root cause analysis (component failure / installation error).

3. Milestone-Based Payment Structure (Whitegoods)

Stage	Release Condition	Payment %	Applicable For
Order confirmation (bulk)	Distributor PO + advance	20% advance	All
Raw material procurement	Key components (compressor, PCB) inward	25%	Contract manufacturing
Production completion	Assembly line QC passed, packed	30%	All
Dispatch & delivery	POD signed, e-way bill	15%	All
Installation & warranty registration	Customer sign-off (for AC/washing machine)	10%	Appliances requiring installation

💰 Typical distributor terms: 20% advance, 50% against dispatch, 30% after 30 days.

4. ERP Module Mapping & AI Automation

Modules

Sales (B2B/retail) · BOM & Routing · Procurement ·

AI Automation

▪ Demand forecasting (seasonal – AC in summer,

Production (SMT, assembly) · QC (functional test) ·
Inventory (FIFO) · Warehouse (pallet) · Logistics
TMS · Service & Warranty · Dealer portal

- heater in winter)
- PCB defect detection (vision AI on SMT line)
 - Warranty claim fraud – pattern of repeated failures
 - Predictive maintenance for assembly robots
 - Route optimisation for distributor deliveries

AI Function	Automation
Seasonal inventory planning	Historical sales + weather forecast → auto increase AC / cooler production 60 days before summer
Component shortage prediction	Supplier lead time + order pipeline → AI suggests alternate supplier ticket
Visual inspection (cosmetic)	Camera on packing line detects scratches, misaligned labels, missing remote → auto reject
Installation ticket AI routing	Customer address + technician skill (AC vs TV) → auto assign nearest technician
Extended warranty upsell	Based on product reliability score → AI recommends offer at time of registration

5. Final Whitegoods ERP + TicketingOS Architecture

Sales Order → Procurement → Production → QC → Packing → Warehouse → Dispatch → Installation → Warranty

Internal ERP: Sales → BOM → Procurement → Assembly → QA → Inventory → Logistics → Service → Finance

AI TicketingOS: AI Demand Forecast → AI Defect Vision → AI Component Shortage → AI Installer Routing → AI Warranty Fraud

Every unit serial # tracked from component to end customer – auto warranty activation on sale.

Barcode & Serial Number Tracking (Whitegoods)

Component batch – PCB serial, compressor batch, motor lot

Production batch – WO number, date, line operator

Finished product – Unique 20-digit serial (barcode + QR) on outer carton

Dispatch – Scan serial → auto generate invoice, e-way bill, warranty start date

Installation & service – Technician scans → auto fetch model, warranty status, service history

Whitegoods Manufacturing Dashboards

- Production OEE (assembly line throughput, changeover time)
- First-pass yield (functional test pass without rework)
- Component supplier quality rating (PCB failure %, compressor defect)
- On-time delivery to distributors (OTIF)

- Warranty claim rate by model (per 1000 units)
- Average installation turnaround time (hours from dispatch to customer sign-off)
- Dealer/distributor inventory ageing (slow-moving SKUs)
- Seasonal forecast accuracy (actual vs AI prediction)