How to Robot — Manufacturer's Checklist

Instructions: Tick each box as you complete the step.

1. Define Your Automation Goals

- ☐ Identify production bottlenecks
- ☐ Set measurable objectives (cycle time, quality, labour reduction)
- ☐ Confirm ROI expectations

2. Assess Process Suitability

- ☐ Check part consistency & repeatability
- ☐ Review environmental factors (dust, temperature, lighting)
- ☐ Evaluate safety & ergonomic risks
- ☐ Confirm available space for robot cell

3. Select the Right Robot

- ☐ Determine payload & reach requirements
- ☐ Choose type: Articulated | SCARA | Delta | Cobot | Gantry
- ☐ Verify speed, repeatability, IP rating

4. Choose End-of-Arm Tooling (EOAT)

- ☐ Select gripper/tool type (mechanical, vacuum, magnetic, etc.)
- ☐ Confirm compatibility with part shape & weight
- ☐ Consider quick-change tooling for multiple SKUs

5. Integrate Sensors & Vision

- ☐ Decide on 2D vs 3D vision
- ☐ Ensure proper lighting & calibration
- ☐ Verify controller/software compatibility
- ☐ Define inspection or guidance requirements

6. Plan Robot Cell Layout

- ☐ Map robot reach & motion envelope
- ☐ Design infeed/outfeed paths
- ☐ Include safety fencing or light curtains
- ☐ Ensure operator & maintenance access
- ☐ Plan cable routing & control cabinet placement

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7. Controls & Connectivity

- ☐ Define PLC & I/O mapping
- ☐ Select communication protocols
- ☐ Set up interlocks & error handling

8. Robot Programming

- ☐ Program motion paths & tool frames
- ☐ Configure safety zones & limits
- ☐ Implement vision guidance/adaptive positioning
- ☐ Validate program under varying conditions

9. Testing & Commissioning

- ☐ Dry-run testing without parts
- ☐ Full-cycle testing with components
- ☐ Validate quality & measurements
- ☐ Simulate fault conditions (e-stops, jams)
- ☐ Safety compliance sign-off

10. Training & Handover

- ☐ Train operators on basic operation & safety
- ☐ Train maintenance staff on troubleshooting & backups
- ☐ Provide documentation & software backups
- ☐ Define escalation process for faults

11. Maintenance & Continuous Improvement

- ☐ Lubricate & inspect mechanical parts regularly
- ☐ Inspect EOAT wear & clean vision cameras
- ☐ Review error logs & optimise cycle times
- ☐ Plan for upgrades or additional automation