



Tool class	What it does	Typical operations use	Fit / Watch-outs
Robotics & mechatronics	Physical movement/ assembly; repeatable motion; EOAT tooling	Machine tending; palletizing; case packing; assembly assist	Variability, tolerances; safe access / fault recovery; changeovers
Sensing & edge	Capture condition / position / quality at the machine	Vision; vibration; temperature; presence; weighing; code read	Placement/lighting; sampling rate; false alarms
Control & execution software	Real-time control; interlocks; recipe / run enforcement	PLC/PID; SCADA; MES execution steps	Overrides; alarm design; version control / cybersecurity
Planning & decision software	Generate feasible plans / schedules and allocations	APS; labor planning; WMS waves/slotting	Bad routings/times; stale calendars; opaque logic
Data & integration	Move / clean / store data; connect systems / devices	OPC/REST connectors; ETL; historians; data hubs	Master data; latency; mapping / versioning ownership
AI/ML & analytics	Find patterns; predict; prescribe actions	Pred. maintenance; quality; forecasting; anomalies	Data quality / labels; model drift; adoption/trust
Wearables & human enablement	Guide workers; capture inputs; improve safety / ergonomics	Pick-by-light / voice; AR work instr.; mobile HMIs; wearables	Usability with PPE; battery/ruggedness; coverage
RPA/admin automation	Automate repetitive digital admin tasks	Order entry; reconciliations; report pulls; alerts	Process changes break bots; governance/versioning