

20 AMR Archetypes in Robotics-Centric Operations

Across dark warehouses, grocery fulfillment hubs, micro-fulfillment centers, factories, and everyday public spaces, operators are shifting to mixed fleets of autonomous mobile robots working alongside automated storage systems, conveyors, and sorting equipment.

Instead of relying on one general-purpose vehicle, these sites choreograph specialized robots for pallet intake, high density storage, order picking, inventory audit, cleaning, security, and dock automation, all coordinated by site control software and robot fleet managers.

The same design patterns now show up everywhere from high-throughput distribution nodes to neighborhood supermarkets, pharmacies, airports, hospitals, convenience stores, and gas stations, where AMRs quietly handle floor care, inventory checks, and small-format material moves while people walk the same aisles.

- Built around robots and automation first, with people focused on exception handling, value-add work, and maintenance
- Storage laid out for robots first – pods, totes, grids, and automated storage modules – instead of wide human aisles
- Multiple AMR types working together as a coordinated system rather than a single vehicle type

Below are 20 common AMR archetypes typically combined in dark warehousing, micro-fulfillment systems, and public spaces.



Pallet & Rack Handling

Pallet Jack AMR: Fork-style that lifts pallets directly from the floor.

Pallet Platform AMR: Low profile decks that carry full pallets.

Forklift AMR: Autonomous counterbalance or reach trucks, rack-to-rack pallet handling.

Heavy-Load AMR: Large-deck AMRs for oversized or multi-pallet loads.

Rack & Cart Lifting AMR: Robots that lift and carry full racks or carts.



Towing & Carts

Tugger AMR: Tows trains of carts on fixed or dynamic routes.

Cart-Pulling AMR: Pulls one or two carts for line-side replenishment.

Dolly-Lifting AMR: Docks under dollies and lifts them from below.



Picking & Sorting

Mobile Picking AMR: Follows pickers or guides them through optimized picking paths.

Sorting AMR: Routes totes or parcels between zones, chutes, or induction points.

Conveyor-Top AMR: Uses onboard conveyors to transfer loads automatically.

Manually Loaded Platform AMR: Flat decks that are manually loaded with cases or totes.



Storage & Station Feed

Pod/Rack-Carry AMR: Moves full storage pods or racks to pick and pack ports.

Tote/Bin-Handling AMR: Transports individual bins or totes between zones.

Goods-to-Person Station-Feed AMR: Feeds pick and pack stations with inventory.



Advanced

Mobile Manipulator AMR: AMR base with a robotic arm for automated picking and exception handling.

Inventory-Scanning/Audit AMR: Sensor-equipped robot for cycle counting, slot checks, and planogram verification.



Utility

Cleaning/Floor-Care AMR: Autonomous scrubber/sweeper for floors.

Truck-Unloading / Dock-Unloading AMR: Robot that enters trailers or containers to unload cartons onto conveyors AMRs.

Safety & Security Patrol AMR: Mobile patrol robot that monitors aisles, yards, and perimeters for safety and security issues.