MICRO-FULFILLMENT CENTER SOLUTIONS FOR OMNICHANNEL RETAIL



Honeywell Intelligrated

FLEXIBLE AUTOMATION IN A SMALL FOOTPRINT

From pure-play e-commerce to brick-and-mortar stores, companies across the retail spectrum are seeking to shorten fulfillment cycle times and reduce the distance between themselves and their customers. Micro-fulfillment centers (MFCs) provide higher-density, smaller-footprint automation where retailers need it most: with direct-to-consumer delivery or in-store pickup.

The retail landscape is changing rapidly. To keep pace with ever-increasing e-commerce and omnichannel demands, retailers must not only accelerate order fulfillment and delivery, but also support the growing consumer preference to "buy online and pick up in store" (aka BOPIS or click-and-collect) — especially now in food retail environments. When you factor in labor shortages, the scarcity of real estate, and the need to digitize fulfillment and supply chain logistics, these market conditions have created a perfect storm of challenges for retailers.

Flexible MFC solutions from Honeywell Intelligrated are designed to help retailers establish the delivery logistics and fulfillment processes needed to support these emerging challenges.

UPGRADE YOUR FULFILLLMENT CAPABILITIES

Adopting a micro-fulfillment center strategy allows you to expand upon your existing fulfillment capabilities with high-density automation technologies located closer to your customers — in urban areas, or in (or near) retail stores — while leveraging existing distribution center (DC) hubs.

Small physical footprint

A traditional automated DC typically ranges from 300,000–350,000 sq. ft. In contrast, MFCs typically occupy spaces less than 20,000 sq. ft., giving retailers the flexibility to locate them within a small, stand-alone facility or integrated with (or bolted onto) a retail store.

Distributed fulfillment agility

An MFC approach supports a hub-and-spoke distribution model — utilizing regional DCs as the hub and MFCs as spokes located within proximity to customer population centers. This shortens the distance for last-mile or last-hour delivery, while supporting curbside pickup fulfillment models.

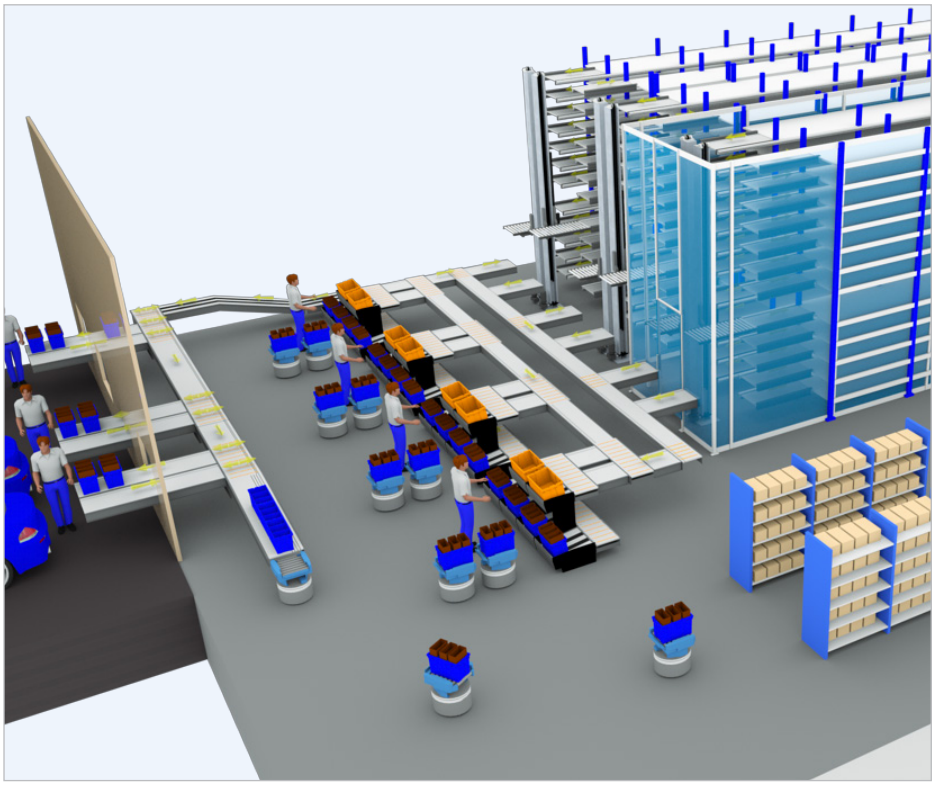
Flexible automation solutions

MFCs can maintain an inventory of up to 15,000 SKUs with the automated efficiencies to enable accurate, high-velocity fulfillment. Solutions can be scaled to support your requirements for delivery speeds, SKU counts and throughput targets — while benefiting from the supplemental inventory of an attached store or regional DC.

MACRO TRENDS BEHIND THE EMERGENCE OF MICRO-FULFILLMENT CENTERS

Every sector of the retail landscape is facing unprecedented pressures related to e-commerce and omnichannel fulfillment. The following macro trends are driving the demand for micro-fulfillment center strategies:

- Consumers demand faster deliveries, including next- and same-day fulfillment.
- Urbanization is forcing retailers to establish MFCs closer to their customers and/or in their stores.
- Lack of warehouse space in urban areas is dictating smaller-footprint operations.
- SKU proliferation from e-commerce shopping preferences adds fulfillment complexities.
- Finding and retaining productive, qualified labor remains a top challenge.
- Emerging fulfillment models like BOPIS have proved problematic and unprofitable.
- E-commerce in food retail has permanently reshaped supermarket business models.



MICRO-FULFILLMENT CENTER — SOLUTION PROFILE

Honeywell Intelligrated combines the best of existing and new automation technologies to develop innovative micro-fulfillment center solutions for customers across the retail spectrum.

From automated storage and retrieval system (AS/RS) shuttles to autonomous mobile robots (AMRs) to advanced Momentum™ execution software, we're combining the latest technological advancements to help our customers meet the demands of next- and same-day order fulfillment.

AS/RS goods-to-person (GTP) shuttle

Our micro-fulfillment solution starts with proven AS/RS shuttle technology capable of storing up to 15,000 SKUs in multiple aisles. Mass retailers can use all aisles for dry goods; food retailers can use any combination of ambient and refrigerated aisles for both dry and chilled goods. The shuttle retrieves goods from the aisles and delivers them to manual GTP picking stations. Once operators complete an order, totes are conveyed to the delivery area for customer pickup.

The solution also includes an AMR-assisted manual picking station for fast-moving, high-velocity items and an option for grocers to integrate a walk-in freezer for frozen goods. Operators pick goods from these locations and place items into totes located on AMRs, which then deliver these SKUs to the appropriate GTP station for order consolidation. Momentum-based routing and storage software orchestrates the entire process for maximum throughput and efficiency.

High-density cube storage

For a more automated MFC solution, high-density, cube-like storage structures combine the best of robotics and AS/RS technologies to reduce storage space by up to 85% — while increasing storage density 50% over shuttle-based solutions. This state-of-the-art solution provides fast, accurate robotic retrieval to ergonomic, GTP workstations and can achieve high throughput rates of up to 300 tote/bin presentations per hour, per workstation.

Given the wide variability of business models and fulfillment scenarios in the retail sector, our high-density MFC solutions can be contracted or expanded to accommodate virtually any facility size or footprint — today and in the future. Not only can they be configured to cover diverse fulfillment processes and requirements, they also enable GTP picking stations to be located anywhere on the cube's perimeter. This flexible profile scales vertically in proportion to your facility's physical footprint and high-density storage demands. By eliminating the need for conveyors, this high-density cube storage reduces upfront investment costs and delivers a low total cost of ownership.

MICRO-FULFILLMENT CENTER CAPABILITIES — AT A GLANCE

Below is an example of a typical grocery micro-fulfillment center's design specifications:

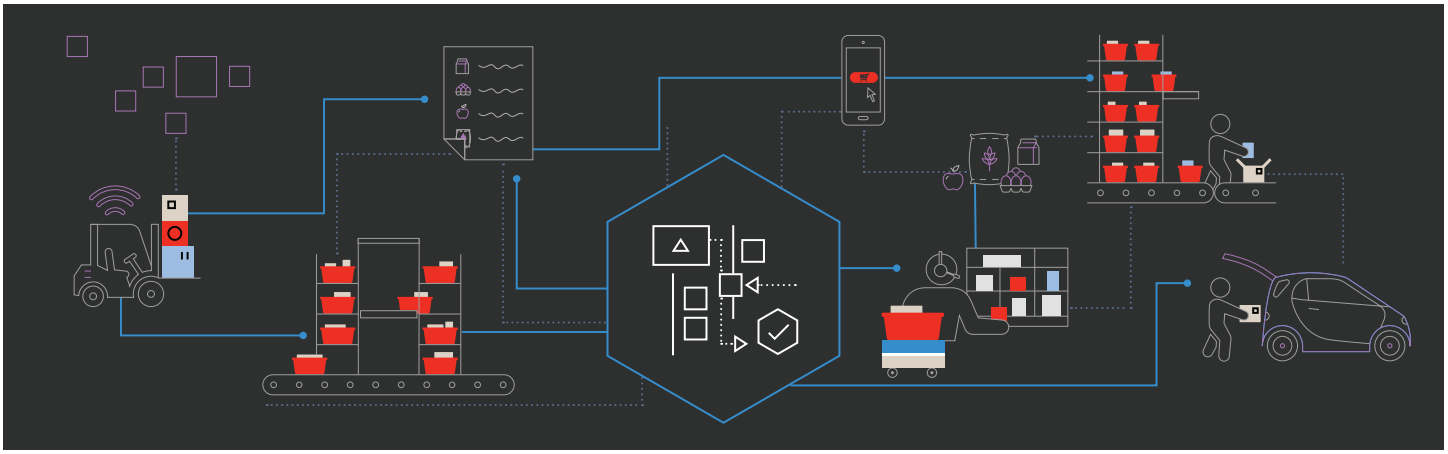
- **10,000 SKUs**
- **12,000 sq. ft.**
- **4 GTP pick stations**

At 15 operational picking hours per day, 15 lines per order and a 1.1 hit rate, this solution can fulfill up to 1,000 orders per day.

MICRO-FULFILLMENT CENTER BENEFITS

Micro-fulfillment center solutions from Honeywell Intelligrated deliver the following benefits:

- Close proximity to customers for faster fulfillment
- Flexible integrations into existing stores, bolt-on installations or stand-alone facilities
- Quick to deploy and commission
- Reduced reliance on manual labor
- Adaptable to a wide variety of market segments
- Ongoing consultative expertise and full lifecycle support



Enhanced robotic integration

To move the needle further toward full automation and minimize reliance on manual labor, our MFC solutions can integrate robotic arm and artificial intelligence (AI) technologies for picking functions. With this approach, the AS/RS shuttle is still responsible for storage and retrieval, and AMRs are still integrated into the decanting, consolidation and picking processes — while robotic arms perform each picking at GTR workstations. These powerful robotic solutions are capable of processing high volumes of data for faster decision-making and offer the flexibility to adapt to a full spectrum of process workflows.

THE CONNECTED DISTRIBUTION CENTER

The pace of change in modern commerce is putting tremendous pressure on fulfillment operations. To stay competitive and protect profits, companies need solutions that help them achieve maximum throughput, day-to-day flexibility, future-proof scalability and intelligence to make informed decisions.

The Connected Distribution Center helps companies make the digital transformation necessary to increase reliability, improve utilization and maximize productivity through:

- Intelligent, data-driven, high-speed execution
- Automated, adaptable processes for machines and workers
- Optimized utilization with the ability to seamlessly adapt and expand
- Insights and predictive analytics, from sensors to the cloud

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