

# Inter Forum Publishing Distribution Center

Malesherbes, France



*Inter Forum Distribution Center*

Inter Forum, a division of Vivendi Universal, is the number-two company in book distribution within Europe. This mega-distribution center was created when five smaller distribution centers were combined. It uses MAGMATIC Systems, the product known as ACCESS Systems in the United States to manage 100,000 pallets of books having 100,000 SKUs. From its automated distribution center located 60 km from Paris, this billion dollar (\$US) company ships 300,000 books a day over a 12-hour period.

Each day, Inter Forum receives 100,000 lines from educational institutions or leisure reading retailers and customers by fax, mail, and telephone. Orders are accepted with priorities ranging from the 'scheduled in advance' non-rush delivery to overnight. The large variety of books available at this site can be shipped individually or in case lots (typically 3,500 orders a day) amounting to 30,000 cartons. Orders can be complex or simple; with one order delivering a truckload to 10 different locations or a single order delivering one book to a home or institution.

Employees (160) work in order picking, which includes the manual storage bay areas (30,000 pallets) and vertical mezzanine areas. Two adjacent automated pallet storage and retrieval systems replenish the mezzanine areas.

At the Inter Forum facility, the MAGMATIC System manages approximately 70,000 pallets within two separate systems. These systems

were installed in two projects: the first project (in 1993) made available 30,000 pallet positions in Storage Building 1 and the second project (in 1999) created 40,000 pallet positions in Storage Building 2. Each system is 14 levels high and combined, move 1,000 pallets in and out per day in addition to the picks. In total, nearly 3,800 moves are made from one location to another at this operation. Full and partial pallets are managed for picking, as well as the receiving and shipping functions.

Fundamental to the activity of each storage area is the adjacent vertical operations floor linked to the systems by external c-channel rail systems. The c-channels let autonomous vehicles deliver pallets to the conveyORIZED and static picking areas located outside the high-rise storage racks in the same way they move inside the racking. Level 1 manages the receiving and putaway functions coming from that level, as well as the levels above that area. Vehicles at Level 2 and Level 3 service the picking areas by using the adjacent pallet lifts and returning to the high-rise storage areas via the vehicle loops.



*Conveyor Picking*

During the planning phases of this dynamic operation, other technologies for storing and retrieving pallets were evaluated. An AS/RS with a narrow aisle AGVS was considered, but the MAGMATIC technology proved to be more flexible for the flows.

An important attribute of this system is that it allows the 'AGVS-like' vehicles to be transferred between the two systems to leverage the peak needs that may occur in a given window of time. Today at Inter Forum, the vehicles are repositioned with manual assistance, but in the future, it may be automated if an external guide rail system is added between the first and second system.

This technology is scalable for performance, meaning that throughput is driven by the number of vehicles that are used. Unlike conventional AS/RS designs where the number of aisles holding the captive storage retrieval vehicles manage all levels of the system within their respective aisle, these vehicles can be moved or added as demands fluctuates.



*Autonomous Vehicle*

The similarity between conventional systems and the MAGMATIC (ACCESS) systems is in their use of fork trucks to service a single level high warehouse and utilize elevator lifts to transfer the vehicles from one level to the next. It is relative that the more vehicles available in the system, the more work can be done. The vehicles are autonomous, radio frequency directed, battery powered, and can travel down aisles as well as across the face of the aisles (the x- and y-axes). Vertical lifts transport the vehicles between

levels, allowing the computer system to control the work areas in the racking that are the most effective for fulfilling demand requests.



*Picking Floor Area*

Only one full-time person is required to manage uptime issues and preventative maintenance, with another person responsible for the conveyance systems. Preventative, predictive, and event error recovery is managed by the system computers. These computers also receive requests from the host (usually a WMS) and execute the requests in the most efficient manner. In this way, the pick waves and needed replenishments operate together, all directed by the WMS.

In the future, an increased demand from e-commerce is expected with as much as 1,000 additional orders per day. MAGMATIC (ACCESS) technology gave Inter Forum the flexibility it sought to maintain customer service levels, regardless of the order mix. The ability to keep storage and the flow path performance separate has greatly enhanced this company's business capability for now and for the future.

With the installation of the new systems, Inter Forum has increased its speed of service, improved its cycle time, and uses its storage capacity more effectively. This company demonstrates that this advanced material handling technology can enhance business performance in a highly competitive and very demanding environment.

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