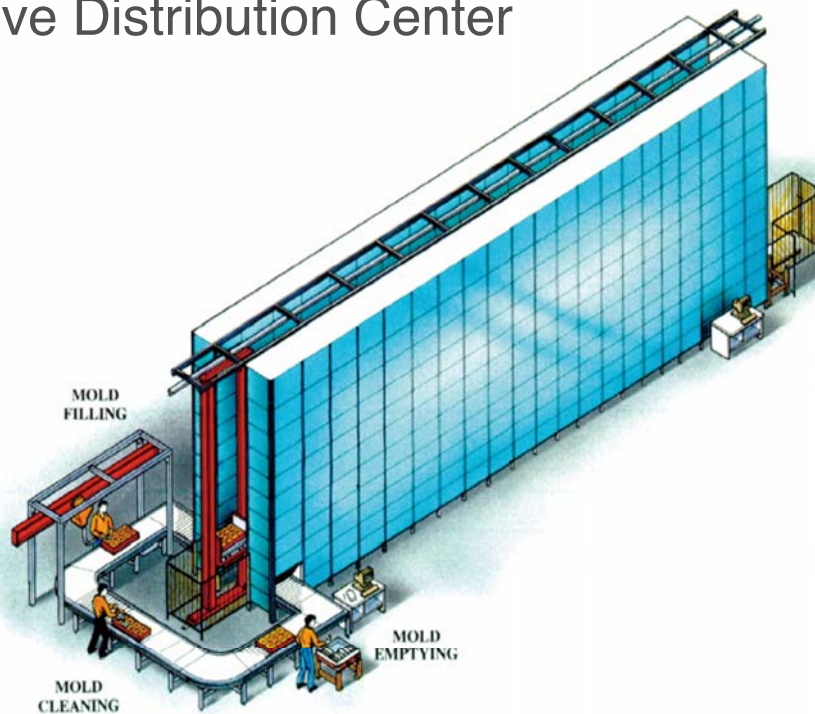


Hargrove Distribution Center



Hargrove fires up gas log production with automated use-point-manager system

Hargrove Manufacturing Corp. in Sand Springs, OK manufactures gas fire cement logs for fireplace specialty dealers and distributors in the U.S. and Canada. To reduce production time, make more efficient use of available floor space, and reduce workers' compensation claims, the company decided to make the leap from a manual, labor intensive production process to an automated material handling system.

Although the company was relatively small at the time with \$5 M in annual sales, Hargrove approved a \$350,000 capital expenditure for a Unit Load Automated Storage and Retrieval System (AS/RS) from Daifuku and Daifuku's local business partner Eagle Material Handling, Inc. of Tulsa. Designed to function as a use-point manager, the system consolidates the process of producing and curing 150 different styles of gas fireplace logs.

Use-point manager delivers at right time & place

A use-point manager is a form of flexible manufacturing system where individual workstations

Hargrove System Summary

Application Requirements

Store work in process and replenishment materials to support manufacturing and curing operations for gas fire cement logs

Daifuku Solution

- One-aisle Unit Load AS/RS
- 465 storage locations
- Real-Time System (RTS) Software

Results

- Boosts production 100% with no increase in manpower
- Cuts order filling cycle time 40%
- Reduces floor space requirements by 80%
- Allows for smooth production flow with virtually no downtime
- Lowers worker's compensation claims dramatically



Use-point manager delivers at right time & place

A use-point manager is a form of flexible manufacturing system where individual workstations are directly and automatically served by an AS/RS, allowing individual workers to direct the flow of materials to and from the work stations. Controlled by Daifuku's Real-Time System (RTS) software, the use-point manager AS/RS buffers and replenishes materials required at the point where they are used. This ensures the operator receives a constant supply of the right materials at the right time, at the right place, and in the right order. The system provides accurate, real-time material control, quick response times to orders and changeovers, and manufacturing flexibility.

AS/RS stores gas fireplace logs for curing

New latex rubber molds are prepared in a number of styles and fastened onto pallets. The pallets are then brought to the pickup and delivery station at the far end of the AS/RS. The AS/RS crane picks up the pallets of empty log molds and places each one in a designated storage location. The storage areas are zoned based on the use of each mold from most frequent to moderate. Empty molds are sent to be filled with the log mixture.

When the RTS computer requests the pallets containing molds needing filling, the AS/RS

automatically retrieves the pallet and deposits it on the output station. The empty pallet bypasses worker emptying molds and travels around the loop conveyor, where molds are prepped, filled and sent back into the AS/RS to cure. The RTS times the curing cycle of the logs and directs the AS/RS to pull the finished pallets to be emptied and painted. The process is repeated with the empty molds.

AS/RS cuts cycle time 40%, increases production 100%

For Hargrove, the advantages of using Daifuku's adaptable use-point-manager AS/RS are numerous. The AS/RS frees up 80% of the floor space used in the company's old process and keeps the production pipeline flowing smoothly, with virtually no down-time. The system continually tracks storage locations for pallets of cured logs, and it runs the daily operations from the orders stored in the computer, directing pallet retrieval, updating inventory counts in the system, and providing real-time, control of Hargrove's entire manufacturing process. In addition, the system allows management to generate various production control reports.

Since the AS/RS system was installed, Hargrove's log production increased 100% without an increase in manpower. Product quality has improved, and Hargrove achieved a 40% reduction in order-filling cycle time. Hargrove expects a decrease in workers' compensation claims, due to the reduction of lifting and manual handling.

"Daifuku understood what we wanted to achieve, and they provided a cost-effective solution that meets our needs. The new system is streamlined, very smooth, and does the job well," says company president Gary Hargrove.