

BENCHMARK REMSTAR

BENCHMARK

BRIEFINGS

SITE

Ingersoll-Rand Co.,
Mayfield, KY

APPLICATION

Manufacturer combines
production and service
parts

EQUIPMENT

Four Shuttle™ Vertical Lift
Modules

SUMMARY

Reduced errors by 80%,
increased productivity by
25% while saving 75%
floor space



**Manufacturer
Consolidates
Multiple Areas To
Save 75% Floor
Space While
Increasing
Productivity 25%
& Reducing
Errors By 80%**

The Shuttle VLM system reduced the floor space requirements from 2000 to 242 sq. feet and delivers all material to a ergonomically efficient workstation.

To consolidate an inventory of small, high-value parts for the manufacturer of large centrifugal compressors – and also to stock small replacement parts shipped to customers – the Ingersoll-Rand Company, recently erected four 24.6-foot tall Remstar Shuttle Vertical Lift Modules (VLMs). The heavy-duty VLMs allowed the plant to eliminate the static racks that formerly stored the high-value parts.

The investment reduced storage floor space from 2000 to 242 square feet and eliminated security fencing. The fully enclosed VLMs can be locked shut and their controls disabled, although such measures are rarely undertaken at the plant.

By combining production and service parts in one automated system, Ingersoll-Rand minimized

both space and materials handling personnel requirements. The company is one of the country's leading manufacturers of centrifugal compressors used for air separation and for chemical, petrochemical, and refinery processes. Compressors fabricated in Mayfield range from 250 hp to 10,000 hp.

“Floor space is at a premium in our facility, and the area freed by the Remstar high density storage Shuttle VLMs permitted the Assembly Department to expand compressor sub-processing and thereby boost manufacturing efficiency,” reported Darlene Valentine, Manager, Materials and Traffic for the plant. “The Shuttle system has also increased picking productivity by 25% per line item picked/restocked, reduced reclamations

from mispicks by 80%, and cut parts shrinkage/misplacement to a degree not yet fully documented.”

Valentine reported that the VLMs were installed in only two weeks. “The Shuttle VLMs have been reliable from their installation through their usage,” she added.

Each of the enclosed Shuttle units have 75 trays, 49” wide x 32” deep, to accommodate parts totaling no more than 400 pounds. Tray-to-tray spacing was custom-selected and ranges from 4 to 29 inches to maximize storage efficiency.

The Shuttle system contains pinions, finished impellers, thrust collars, rotor bolts, valves, and other items. Parts are retrieved via keypad by any of the plant's materials handlers. Tray and

“Tray presentation never takes longer than a few seconds, a great time savings compared to picking by manlift.”

compartment codes are printed on bills-of-material generated by the facility's Manufacturing Operating System.

“Tray presentation never takes longer than a few seconds, a great time savings compared to former picking by manlift,” Valentine said. “Parts are removed from trays at



The materials handler places replacement parts in a carton for shipment to a customer.

waist height, minimizing lifting.”

Retrieved production parts are either hand-carried or carted immediately to Assembly, or they are carried or carted to a sub-assembly kitting/packing table and combined with parts pulled from flow and pallet racks. Customer replacement



Four 20-foot tall Remstar Shuttle™ VLMs at the large centrifugal compressor plant delivers parts to operator.

parts also proceed from the VLMs to the packing table for packaging and shipping.

Conveyor in front of the Remstar VLMs delivers incoming parts from Receiving. Accompanying paperwork contains the putaway location codes for part numbers already assigned to the Shuttles. For new part numbers (P/Ns), the materials handler in the area assigns the location codes. Picking and put-away normally take place simultaneously.

Parts stored on the modules are generally grouped by families, such as all thrust collars on one Shuttle unit. Parts are removed from their shipping cartons prior to putaway for easier viewing and retrieving.

Some parts remain in the manufacturers' packaging, others are stored unprotected, such as finished impellers lying exposed on foam padding. Shielding from dust and dirt is a major advantage of the enclosed VLMs.

“Because of the Shuttle VLM equipment's tight control of P/Ns



Operator uses the operator friendly keypad to enter a tray number for retrieving or putting away a part.

and storage locations, the units are being employed as a beta test area for a planned conversion to barcoded part number tracking throughout the plant,” Valentine concluded.

REMSTAR
 Remstar International Inc.
 41 Eisenhower Drive, Westbrook, ME 04092
 800-639-5805
 www.Remstar.com info@remstar.com