Wild, Wild

WELD

WMS delivers the goods for ESAB Canada's supply chain

SAB is the number-one welding company in the world and the second largest industry player in North America with a product range that includes welding machines, cutting equipment and filler metals. ESAB services its customer base of metal fabrication companies, shipyards, the agricultural industry and more through a large distributor network. In recent years, Sweden-based ESAB has achieved some notable technological advances in response to customers' needs. Examples are the first "H4" flux core wire in North America and, in collaboration with the British Welding Institute, the development of "Friction Stir Welding" —an aluminum welding process that produces a weld as strong as the base metal.

ESAB Canada's 6,038 square-metre (65,000 square-foot) warehouse in Mississauga, ON, ships everything from 0-rings to million-dollar cutting machines from an inventory of 30,000 items. The company decided to automate the facility to keep pace with revenues that were doubling every five years. It evaluated proposals from several vendors before choosing the TECSYS warehouse management system (WMS) from TECSYS Inc.

The WMS, which came on-line last year, has met all of ESAB Canada's expectations with much faster order fulfillment and better than 99 percent accuracy in order picking and inventory. The company's customers are now happier and its warehouse is a much more "transparent" place, which is fully integrated with other departments.

Features of the WMS include pick zones, bar code-based radio frequency (RF) communication, daily cycle counts and lot control. It interfaces seamlessly with the corporate host (SSA Canada Corporation's BPCS system) at one end and TECSYS' own freight accommodate reverse billing by carriers, advanced shipping notices (ASNs) and electronic data interchange (EDI) — all of which ESAB plans to launch soon.

"It was a complete one-stop shopping set up that was implemented, after a lot of groundwork, over a two-week period at the end of 1997. As of January 1, 1998, our people were already running the WMS at a very high rate of efficiency and speed," says Mike Williams, ESAB Canada's operations manager. "We've experienced not only a huge increase in productivity but also in proper tracking of orders and inventory, which our old system wasn't able to do. The WMS can tell you who did what, when and where."

The host BPCS system starts the order process and assigns it to the WMS, which allocates the pick number and indicates when the picking process is complete. It also transfers the order back to BPCS at the ship-confirmation stage. The WMS holds all detail regarding inventory; BPCS holds original detailed

order information, tracks inventory and does invoicing. However, the location of inventory and all warehouse activity is controlled by the WMS.

There are five pick zones in the warehouse, each representing a physical characteristic or requirement of the product:

Zone 1 — Storage carousels for small, light products.

Zone 2 — Bin storage for small/medium products.

Zone 3 — Racked storage for large items such as wire products, electrodes and power supplies.

Zone 4 — A single aisle dedicated to product literature.

Zone 5 — Shipping repair orders.

The WMS assigns a receiving license to all incoming SKUs (stock-keeping units). This is a bar-coded label, which identifies the contents of the SKU and shows that it's recorded as having been received. The warehouse has a map of primary and secondary preferred locations for all receipts, which is fundamental to computer-directed putaway. It says, for example, that the primary preferred location for electrodes is aisles 1, 2 and 3, and that the secondary preferred location for them is aisles 4, 5 and 6.

Barcoding and RF communication play a big role in ESAB Canada's recently installed warehouse management system

Under the previous paper-based system used by ESAB Canada, the host allowed only one location in the warehouse for a part number. If a product was located in more than one place, then the operators had to depend on their memory and physical signage to direct them to where the balance was stored. Now, the WMS shows where everything is stored, and dealing with multiple locations isn't a problem.

The system allows an order to be picked in the five different zones independently, and different orders may be picked simultaneously. The print label for the picking licence is assigned by the picker and is used for identifying each SKU, which doesn't necessarily mean one particular product. It can be one skid, one box or one item. The picking station provides a list of label numbers for each order. With the WMS's pick-by-zone function, warehouse workers don't have a choice of which order to pick, or "cherrypick."

Bar codes identify locations and product, though not all product is bar coded. The warehouse uses UPC and EAN symbologies for product and Interleaved 2 of 5 on the racks. As orders are picked, the information is communicated to the WMS via RF by order pickers with Norand multi functional RF laser scanners that can decode any symbology. There are seven scanners of two types, which came as part of the WMS: four short range and three long range.

Carousel Ride

There are two carousels for small parts so one can be maneuvering into place, while the other is being picked from. Blue totes in the carousels are identified stock locations. Similar items are stored together,

although it's a random, as opposed to dedicated, storage system. For safety reasons, a log on function allows only a single person to access the carousel at one time.

The carousels actually pre-date the WMS, having been installed in 1996 to reduce the amount of floor space for small parts by 75 percent and increase the speed of order picking. Before the implementation of TECSYS' WMS system, inventories for all carousel parts were stored on both a PC and ESAB's mainframe. The two inventories never balanced, but now all inventory is controlled by the host.

The WMS allows up to eight orders at a time to be picked from the carousels, by essentially converting them to one big order for picking efficiency. A vertical light tree tells staff where to pick an item, while a horizontal light tree shows which takeaway tote to place it in. Pickers in Zone 2 use pick carts, and an experienced picker can pick three orders simultaneously. In Zone 3, forklift trucks must be used, since pallet loads can easily weigh 1,360 kilograms (3,000 pounds) and are stored in racking up to four levels high.

Three Raymond model 2OR4OTT reach trucks and a Clark three-wheel electric counterbalance truck are used for dock work. There are six shipping lanes on the loading dock, each with its own bar coded location. When an operator has finished picking any part of the order, he or she drops it off at one of six shipping lanes, advising the WMS of the location. The WMS then transmits the lane number to all the other order pickers through their hand held RF terminals, enabling shipments to be consolidated on the dock.

Once the order is picked and packed, the system automatically generates a shipping label and packing slip. TECSYS' Conductor shipping module allows ESAB to shop around for the best rate/service package and assign the carrier accordingly. Once the shipment weight is confirmed, the carrier selection process takes place automatically. "We invite transportation companies to come in and quote, periodically, and since our loads are heavy and dense, they're usually keen to do so," says Williams.

ESAB currently uses the following carriers based on destination:

Midland Transport Ltd. to the Maritimes; Papineau Transport Ltd. to Quebec; Apex Express in Ontario; and Transwestern to Western Canada. The main courier is Purolator Courier Ltd. and there's also some air cargo via Air Canada. Shipments leave in the afternoons and evenings, with no courier shipments before 5:00 p.m.

"We prefer not to use labels from courier companies, but generate our own through the WMS. We don't want to get into running back and forth with a standalone system," says Williams. "We ensure that our label meets the carrier's bar code requirement, including Unicode. Orders received by 3:00 p.m. local time are shipped the same day — or up to 6:00 p.m. for rush items.

The WMS offers such features as: checking; packing; re-classification (i.e. change item size); stock location assignment, according to size (even within the zone); and generating a part-shipment label such as when picking multiple quantities into Ziploc bags and identifying each, with quantities.

The WMS can also provide a snapshot of orders by zone and the number and status of live orders. The system performs daily cycle counts so the annual physical inventory is a thing of the past. It will also allocate priority codes to orders on a ranking of 1 (highest) through 99, while performing lot number control. It can track outbound shipments by serial numbers to know where they went, should there ever be a recall.

"Prior to the WMS, it wasn't unusual for us to have orders carry forward to the next day," says Williams. "Now, that would be very unusual. This is important for our customers. The system helps to fulfill our customer service needs, because if it says the product is here, it's here."

The WMS is also capable of some very detailed order inquiry such as who picked what, where and when (to the minute), as well as its picking license number. This is an important way to detect mistakes such as counting errors, wrong pick bin, similar part number picked, or the wrong item was received from the vendor in the first place. The WMS has also had a major positive effect on the receiving process.

Since most products are received from the US or Europe, they arrive in large quantities, and it can take up to two days to complete the process. As well, some items need to be shipped immediately and must be identified fast. In fact, fully two-thirds of receipts don't go into stock but are essentially cross-docked. "We create a temporary location for a product, and now we know that the product has been received and is in the building," says Williams.   **MM&D**

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