Handling material problems as they arise

By Dr. Dave Sly, Proplanner

Organizing a manufacturer's internal logistics and materials handling information can be a daunting task. Many companies store this detailed information within one or multiple spreadsheets or Access databases. The challenge with this approach is that part data is often obsolete, and it is difficult for multiple users to access simultaneously. In addition, the data is not easy to format into the various reports, analyses or queries needed by the multiple users.

The Proplanner PFEP (Plan for Every Part) materials handling database can be used as a master repository for all that information. PFEP defines where parts are received, stored and deliver-ed in the plant, as well as how the material is moved, and what triggers that movement.

Courtesy of Proplanner

As part of the Plan for Every Part materials handling database software, Flow Planner generates flow lines that are color coded according to product family, part family, container type and move method, among other attributes.

PFEP synchronizes with the engineering change orders (ECOs) that come from product engineering, as well as the updated line balancing tasks and subsequent part assignments that come from process engineering. With these upstream integrations, changes to a line balancing task or a product line's bill of materials can be quickly and accurately identified and electronically submitted to the materials handling engineers.

Materials handling engineers import these ECOs and line balancing scenarios, and the PFEP module flags the required part location changes in a way that quickly and easily identifies and categorizes them. The engineers can then address these changes as parts that need to be relocated from, added to or removed from each workstation and "supermarket" (a smaller department-based storage area near assembly lines and workplaces). PFEP then generates new rack and container labels for those added or relocated parts so the changes can be implemented on the shop floor.

The PFEP system also includes an optional pair of modules (eKanban and eKitting) to assist with the execution, tracking and management of in-plant logistics activities. The eKanban module tracks the pull

of empty containers and the replenishment of full containers within a manual kanban system. With eKanban, engineers can see the minimum, maximum and average part replenishment time, as well as the number of times each container has cycled during the past shift, day, week and so on. In addition, the system can automatically print new labels for each replenished container to support nonreturnable kanban containers, or it can request containers from vendor sites.

The eKitting module generates pick lists for parts required to meet the specific needs of a product or workstation on the assembly line. With this capability, PFEP creates ordered pick lists for each unit or batch of units released to the assembly line, and sends these pick lists to hand-held scanners or printers connected to the Internet or an Intranet. Plants can request sequenced or unit-specific part kits from in-plant supermarkets or external vendors.

The eKanban and eKitting execution modules create actionable information about part replenishment lead times and container cycling counts. With this information, engineers can accurately adjust part and container quantities at each workstation and supermarket location to better reflect actual inventory requirements. These adjustments to quantities can be made within PFEP's executions module, and containers will be immediately dispatched or retracted as requested. This feature eliminates the need to go to the shop floor and manually print labels and add or remove containers.

Another analysis tool is automated diagramming of material flows within an AutoCAD layout of the plant. This capability is accomplished via integration with the Flow Planner application, which is included with PFEP. Flow Planner enables engineers to diagram the flow of materials by fork truck or "tugger" through the plant via straight lines or aisle paths. These flow lines are color coded according to product family, part family, container type and move method. In addition, flow lines are scaled in thickness according to the frequency of trips per shift, day, week, month or year, and contain intelligent attributes that allow them to be filtered (on or off) based upon any user query.

The PFEP system includes the ability to apply a manufacturing part classification code to parts in the database based upon attributes, such as demand/time, part size, part cost or any set of user-defined part attributes. These codes can then be subsequently used by the system to assign in-plant logistics replenishment systems, such as vendor-managed, kitted and kanban, to transact those parts through the plant. CTE

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