

Sage Line 500 - Production Scheduling

Sage's new Production Scheduling module is built around the market-leading Advanced Planning and Scheduling solutions developed by Preactor International. In the past, manufacturers have often been reluctant to embrace APS because of the perceived complexity of integrating the technology with their existing business systems. Sage has overcome this problem by offering a powerful APS solution that has been pre-configured to provide tight integration with Line 500.

Records Kept

Work Centres

Skill groups and operators

Preferred resource selection

Operation Setup Time

Shift patterns, vacations, shutdowns

User defined resource states and efficiencies

Process rate by item, per hour and per batch

User definable maximum operation span

Finite and infinite resources

Manual and interactive breakdowns, downtime schedules

Product Group Icons

Constraints for an operation

Product dependant changeover times

Multiple constraints for an operation

Tasks Supported

Graphical Planning Board

Schedule Despite Shortages

Converting MRP Recommendations into Work Orders

Updating Works Order operations

Sub-contract operations

Comparative Gantt chart

Comparative order trace chart

Resource waiting time plots

Schedule performance metrics

- For any schedule the user may look at a standard set of statistics. The schedule performance metrics button will show for the currently loaded schedule:
 - Job Count Date (Number and Percentage) " Early, Late, Incomplete, Started.
 - Job Completion Date (Total, Minimum, Average & Maximum) - Early Time, Late Time, Setup Time, Lead Time, Value Added.

- Resource Data (Percentage Minimum, Maximum & Average) “ Working, Setup, Unavailable, Idle, Utilisation.
- Schedule Span.

Additional constraints usage by resource plots

Operation Progress and Hold

Multiple batch matching

Sequential and parallel loading of operations from different orders

Standard dispatching rules e.g. preferred sequence, critical ratio

- In Production Scheduling you can set up in the resource database the ranking of operations when running the preferred sequence rule. The in-built attributes are:
 - Due date, Priority, Critical ratio, Dynamic critical ratio, Process time, Setup time.
 - You can select any of these to rank the queue for a resource (either highest value first or lowest value first). You can select more than one attribute to deal with ties.
 - Critical ratio and dynamic critical ratio are also important in minimising lateness. The critical ratio is the ratio of time to due date compared to the sum of remaining operation times for the order. Dynamic critical ratio is calculated by test loading remaining operations onto the planning board. This is a more accurate estimate of criticality but takes longer to run.

Standard algorithmic rules, minimise WIP, dynamic bottleneck, selective bottleneck

- In Production Scheduling there are rules that are a combination of ‘operation at a time’ sequencing as in the preferred sequence rule engine but without using parallel loading dispatching rules.
- There are standard in-built rules in Production Scheduling. These are Forward, Backward, Minimise WIP Forward, Minimise WIP Backward, Selective Bottleneck and Dynamic Bottleneck. Minimise WIP forward is a combination of forward and backward sequencing.
- Dynamic bottleneck is a variation on the Minimise WIP forward rule. Each order is forward sequenced. Production Scheduling then finds the operation that waited longest to be processed. This is the bottleneck operation and defines the bottleneck resource for this order. Production Scheduling then locks the last operation and backward sequences the other operations except that an additional buffer time is used on the bottleneck resource.
- The Selective Bottleneck rule is based on the Theory of Constraints (TOC) philosophy. It works by the user selecting the “Bottleneck Resource” or “Bottleneck Resource Group”.

Mid-batch update and calculations

Automated Functions

- Automatic allocation of materials during download from MRP.
- Automatic linking or pegging of operations from different orders.
- Material allocation rules linking consuming and producing orders.
- Automatic transfer batching between operations.
- Automatic schedule repair.

Reporting

Customised Report Writer

- The user can modify and save the in-built standard reports and create additional reports using the in-built Report Writer.

Schedule Analysis Reports

- The user has access to schedule comparison tables that provide additional data over and above the Schedule Performance Metrics report. This configurable tool generates tables in XML format to compare schedules based on defined criteria.

Additional Schedule Analysis Reports

- This goes beyond the Schedule comparison tables in that it contains information on utilisation by day and week by resource, by resource group and by secondary constraint.

Additional job status report

Standard reports

- Schedule Performance.
- Work-to list for each resource.
- Orders and Orders by Customer.
- Route cards for each order.
- To do Operation list by day.
- Late operations and orders.
- Shift patterns for each resource.
- Shortages.

E-mail Gantt charts and reports

- The user can automatically e-mail Gantt charts (as a bitmap) or reports (in RTF format) from within Production Scheduling.

Schedule export to Excel

- The user can export user defined schedule data to an Excel spreadsheet

Web Publisher

- The user can automatically create reports and Gantt charts in HTML format to display on a web page. These can be viewed using Microsoft Internet Explorer.

Integration with other modules

Accounts Receivable and Sales Order Processing

- Integrates Sales Orders and Customers which are demand elements in the Production Schedule.

Accounts Payable and Purchase order Processing

- Integrates Purchase Orders and Suppliers which are replenishment elements in the Production Schedule.

Inventory Control

- Integrates with Inventory to determine initial stock levels and to retrieve product attributes.

Bills of Materials

- Integrates with the Bill of Materials to establish parent-child relationships and component requirements.

Routing

- Integrates with the Routing module to determine resource and time requirements.

Works Order Processing

- Integrates with Works Orders to determine replenishments and demands. Updates works orders with selected resources and planned operation start and end dates and times.

Material Requirements Planning (MRP)

- Integrates with MRP to determine replenishments and demands. Automates the conversion of MRP recommendations to Works Orders.

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