PPS Planning Module

The planning module is used for rough time planning of production orders. Orders can be assigned to the available production resources (e.g. machines or employees) according to the manufacturing specification.

This production resource planning graphically displays the chronological course of planned and released production processes and offers the following functions:

• Status display of production resources
• Zoomable time list
• Orders are colored according to the basic data of the production item
• Details of the operation can be viewed via ToolTip (content configurable)

The temporal course of the production capacity is easily visible via colors:

• Transparent = no capacity utilization
• Yellow = low capacity utilization
• Orange = high capacity utilization
• Red = overload

Planning process

Unplanned orders and batches are listed and can be dragged and dropped onto the planning board. Using the "load in" function, the time sequence of the various operations of an order is automatically positioned correctly.

Time windows for cleaning and maintenance of production equipment can be scheduled at the push of a button after the appropriate setup.

Operations can be easily shifted to other production equipment or even split up in terms of time.

Scheduling

But planning does not necessarily have to be done manually. The system can automatically schedule the available orders according to the free production resources using a predefined algorithm. In this way, it creates an overview of the capacity utilization and the orders still to be completed in a short time.
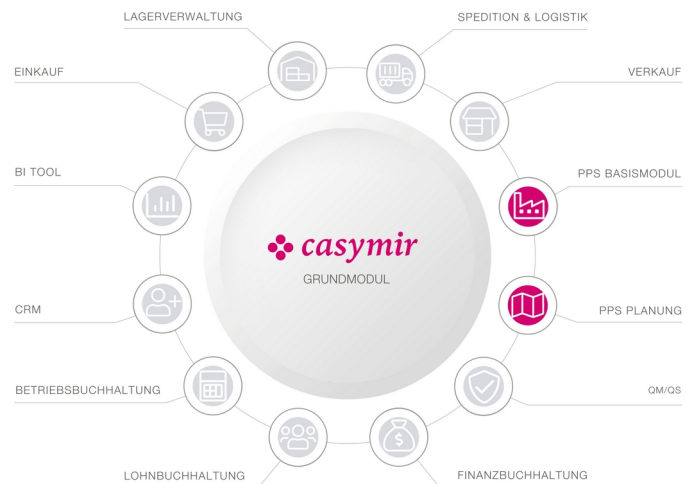
Various framework conditions can be defined for automatic capacity planning. For example, the system distinguishes between bottleneck and non-bottleneck production resources, which the algorithm takes into account accordingly.

Two shift plans can also be stored for production resources:

• The basic shift schedule defines the normal working time
• The exception shift plan has priority over the basic shift plan

Algorithm

The system offers two scheduling algorithms: A forward scheduling and a backward scheduling.

Forward scheduling loads the individual work steps of the master batch record, starting from the earliest start, onto the required production resources. The work to be done is scheduled on the time axis according to the shift schedules of the production resources. In this process, bottleneck systems are only loaded up to the predefined percentage.

The result of forward scheduling is the earliest possible end of production.

Backward scheduling works analogously, but it starts at the latest possible end and distributes the work from back to front. In this way, the latest possible start of the project is determined.

Release

Following the automatic scheduling, the planning can be examined in the workload diagrams.

The last step is the release. Here, the system checks whether the required material is available in sufficient quantity at the planned time. Planned stock receipts as well as issues for other production orders are taken into account.

If a raw material is missing at the planned time, the system checks whether it can still be procured in time, taking into account the replenishment lead time.

Release can only take place if the material situation permits this.

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