



Genetic Optimizer (GO) Scheduler

Flexible, easy-to-use tool that optimizes production scheduling and accommodates scheduling changes, native in Microsoft Dynamics™ AX

Key Benefits

- **Native in Microsoft Dynamics™ AX** – No third party integration is required
- **Streamlined Scheduling** – Less time required to generate schedules, freeing up time for key staff to work on other tasks
- **Real-time Data Availability** – The latest schedule will be as up-to-date as the transactions that are entered into DAX, i.e., production completion, shipments, orders, etc.
- **Complete Visibility** – The tool, screens and reports are available to any user who has access to the internet and proper authorization and everyone sees the “same numbers”
- **Flexibility** – The scheduler is configurable and flexible enough to support all of the plants

The pace of the competitive marketplace for food and beverage manufacturers continues to speed up. Consumers are being given more choices of what to purchase and more ways to buy it, compelling manufacturers to deliver better quality products at a lower price, faster than ever before to stay ahead of the curve. The manufacturing production environment, likewise, needs to be agile to meet the demand and flexible enough to efficiently respond to changes.

Production planning and scheduling is not a static exercise undertaken at the start of the day or week and left unchanged until the next planning run. Changes occur during multiple points throughout any given day. Manufacturers need to have the ability to execute an analysis of “what if” scenarios quickly to be responsive to changing demands and planning and make the adjustments in their scheduling while minimizing operational costs.

The Genetic Optimizer (GO) Scheduler from Junction Solutions provides manufacturers with the speed and flexibility needed to optimize production schedules. Because the GO Scheduler is native in Microsoft Dynamics™ AX, no integration or third party solutions are necessary. Also, because the GO Scheduler is built and maintained by Junction Solutions, your upgrade path is simplified.

The GO Scheduler enables manufacturers to reduce the workload associated with scheduling, while improving the quality of production schedules and quickly responding to changes within the schedule throughout the day. The GO Scheduler can help optimize even complex production and packaging schedules, such as make-to-order.

The GO Production Scheduler Features:

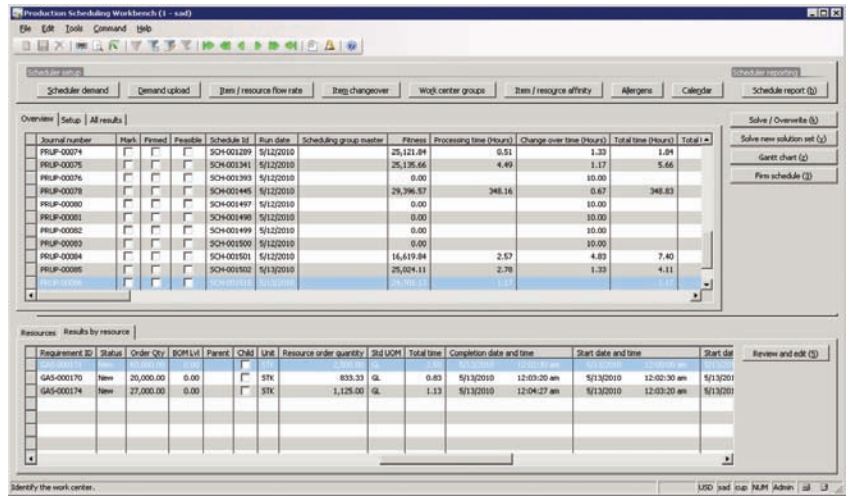
- **Flexible, Using a State-of-the-Art Genetic Algorithm** – The GO Scheduler’s algorithm generates a population of solutions, calculates a “fitness function” for each member of the population and evolves an optimized solution over many. By using the “fitness function” as its driver, it is extremely easy to add constraints and enable greater flexibility.
- **Completely Built and Maintained by Junction Solutions, Native in Microsoft Dynamics™ AX** – The GO Scheduler does not require any outside optimization engines and no third party math libraries. Because it is native in Microsoft Dynamics™ AX it does not rely and integrations and data from other systems.
- **Simple and Easy to Use** – The GO Scheduler was designed to be user friendly and not require a significant learning curve compared to commercialized versions of engineering or mathematical optimization tools.
- **Plant Independent Configuration** – The GO Scheduler can be configured to support virtually any production environment and is plant independent. It can be configured according to the plant’s production line requirements, product characteristics, changeover relationships, run rates, resource availability and more.



Interactive Production Scheduling Workbench

- **Proprietary Genetic Algorithm Determines a Feasible Production Schedule** – The GO Scheduler uses a Genetic Algorithm that currently supports:

- Sequence dependent setup scheduling (optimized changeover sequencing)
- Simultaneous scheduling of multiple lines including line preferences
- Line/resource specific run rates, capacity and changeover times
- Bills of Material requirements including sub-BOM level scheduling
- Ability to sequence based on the presence of allergens
- Considers downtime for system cleaning
- Variable start times and end times for production resources
- Early and Late Constraints for production orders



Production Scheduling Workbench

Production schedule

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5/12/2010
09:56:25 am

Schedule ID SCH-001289
Firmed No
Scheduling group:

Group 1.33
Change over time (Hours):
Processing time (Hours):
Run date 5/12/2010

Resource name	Resource sequence number	Order number	Item number	Item name	Start time	End time	Setup time	Run time
Filter 02 - 1/2 gallon filter	0		31600450	HEB HOMO	12:02:51 am	12:02:54 am		2.90
Filter 02 - 1/2 gallon filter	1	40752772		HEB WHOLE VIT D (24-1GAL)	12:12:53 am	12:13:04 am	10.00	0.18
Filter 02 - 1/2 gallon filter	2	40959593		HEB 2% (24-1 GAL)	12:32:48 am	12:33:59 am	20.00	0.08
Filter 02 - 1/2 gallon filter	3	40155344		HEB SKIM MILK (4-1GAL)	12:53:42 am	12:54:03 am	20.00	0.90
Filter 02 - 1/2 gallon filter	4	40142948		CM ORGANIC WHOLE (8-1/2GAL)	12:55:21 am	12:55:23 am		1.33
Filter 04 - 1/2 gallon filter	0	40164440		HEB 2% (54-1/2 GAL)	12:00:06 am	12:00:07 am		0.11
Filter 04 - 1/2 gallon filter	1	31600900		ORGANIC 1%	12:02:52 am	12:02:55 am		2.80
Filter 04 - 1/2 gallon filter	2	40909126		HEB WHOLE VIT D (54-1/2GAL)	12:12:53 am	12:13:04 am	10.00	0.15
Filter 04 - 1/2 gallon filter	3	40086551		HEB CHOC (8-1/2GAL)	12:33:43 am	12:34:04 am	20.00	1.00
Filter 04 - 1/2 gallon filter	4	40143924		CM ORGANIC 1% (4-1GAL)	12:36:17 am	12:36:19 am		1.25
Gallon filler 1	0	31600600		HEB SKIM	12:04:07 am	12:04:12 am		4.20
Gallon filler 1	1	40436626		HEB SKIM (8-1/2GAL)	12:05:02 am	12:05:03 am		0.84
Gallon filler 1	2	40946905		HCF 1% (24-1GAL)	12:05:07 am	12:05:08 am		0.10

Production Schedule Chart

- **Reduce Time to Generate Plans to Focus on “What If” Analysis** – The GO Scheduler can solve a simple problem in seconds and a large, complex, multi-line, BOM constrained problem in just a few minutes. It is also able to create a schedule, update and reschedule repeatedly, throughout the day.

- **Multiple Deployment Options** – Deploy the GO Scheduler as either fully integrated with Microsoft Dynamics AX or as a standalone. Junction Solutions can help guide you to find the best option. Should you decide on the standalone, our experienced team can advise you on any feature differences or process adjustments between the two versions.

About Junction Solutions

Junction Solutions provides vertical-specific software applications and services that help organizations enhance operational performance, reduce costs, expand delivery channels and strengthen relationships. Built on Microsoft Dynamics™ AX and designed specifically for Food & Beverage and Retail companies, Junction Solutions’ innovative offerings focus on enterprise resource planning, (ERP), supply chain management (SCM – demand, order, warehouse, yard and distribution management), human capital management, merchandising and promotions, order entry management, inventory management, point-of-sale management, and eCommerce/Web Store. For more information, please visit www.junctionsolutions.com.

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