



QAD MANUFACTURING

Manufacturers face many ongoing challenges that inhibit growing revenue and profit: Customers desire product configurability and customization, and expect DIFOT, excellent quality and great service. Supply chains operate in constant flux that put pressure on inventory and material management to prevent excess inventory and stockouts. Complying with everchanging

government regulations and industry requirements is needed to manage risk and brand. Accurate and timely planning is essential to run production effectively, particularly given that increasingly manufacturers run mixed mode. New technologies, from cloud and the Internet of Things to advanced analytics and robotics, necessitate innovative changes to remain competitive.

BENEFITS

QAD Manufacturing helps global manufacturers run simultaneous, multi-mode manufacturing and provides full shop floor control of orders across the manufacturing process. It supports mass customization of products in response to customers' unique requirements, and measures and tracks performance and quality. The solution provides processes for discrete, repetitive, multi- and mixed-mode, Kanban, flow, batch and formula process and co-products/by-products manufacturing.

- **Reduce Cost of Goods Sold** with accurate master planning and scheduling
- **Reduce risk** by meeting regulatory, compliance and quality requirements
- **Increase operating income margin** with lean manufacturing that fully supports continuous flow and pull techniques
- **Streamline manufacturing planning and execution** by deploying best practices, integrated processes and optimized pricing
- **Improve response time** by providing timely access to accurate planning information
- **Increase customer satisfaction** by responding quickly to demand changes
- **Boost manufacturing performance** through real-time insight into production
- **Increase inventory turns** by synchronizing purchasing and material handling
- **Improve order to delivery time** with integrated available to promise
- **Improve customer retention and loyalty** due to realtime access to in-depth product information and the ability to customize products for a customer
- **Increase production agility and flexibility** with material supply processes tailored by item or resource

SOLUTION OVERVIEW

QAD Manufacturing fully integrates planning, scheduling, cost management, material control and shop floor control. It adapts to any style of manufacturing and specific approaches by region and/or site. Quality metrics, central model management and automated data collection ensure accurate, complete product, material and inventory information. Intuitive planning tools synchronize production to match changing demand, while quality management helps maintain production excellence.

- **Simulate schedule changes and immediately view the impact to customer deliveries and capacity.** Changes to the schedule update ERP and communicate priority to the shop floor with real-time closed-loop feedback and visual alerts.
- Analyzes sales shipment history, calculates forecasts and updates demand for MRP, creating a **closed-loop system**.
- **Calculates projected inventory, schedule and planned orders** by utilizing a site's master schedule and other sources.
- **Determines work center load and generates capacity requirements plans** for a department, work center or machine by utilizing MRP planned orders, other work orders and repetitive schedules.
- **Enables authorization and control for manufacturing products**, recording material issues and receipts, and controlling rework and scrap.
- **Provides complete lot and serial number tracking history** from finished goods back to the supplier's lot. Supports Waste Electrical and Electronic Equipment (WEEE) and Recycling of Hazardous Substances (RoHS).
- **Easily share key information with suppliers**, including inventory, scheduling, purchase orders, shipments, Kanbans, invoices and bills of material information.
- **Extends track and trace** capabilities with visibility of current and historical lot-controlled inventory to support returns, recalls and audits.
- **Captures unlimited generic or qualitative characteristics by item, lot or sub-lot** with supporting required documentation and reports for auditors, industry and government regulators such as Dodd-Frank and cGMP.
- **Quickly simulate and effectively respond to changes in demand or product mix** using an interactive sizing workbench that includes visibility into all process and planning parameters.
- Visibility into capacity and material availability ensures **coordination between the master scheduler and production planner**, reducing the planning/scheduling cycle from days to hours or minutes.
- **Expedites material replenishment** to buffer stock locations reserved for specific production lines or work centers.



SOLUTION DETAIL

QAD Manufacturing includes a full complement of components and capabilities to support the needs of the global manufacturer. Core components are listed below.

Available to Promise (ATP) helps manufacturing accurately respond to customer orders based on available product quantities and requested delivery dates.

- Displays ATP quantities and totals on master schedules, and calculates fulfillment based on time frame and inventory availability
- Prevents users from confirming orders when ATP is insufficient

Inventory Management monitors balances, performs cycle counts and includes inventory transaction history and access lot/serial tracking reports.

- Provides visibility into inventory rotation and usage data, helping to reduce inventory levels and costs
- Manages shelf life, obsolete inventory and controlled locations
- Assigns default inventory attributes

Lean Manufacturing extends QAD's proven manufacturing planning and execution functionality to support continuous flow and pull techniques.

- Interactive workbench provides process and planning parameters to quickly simulate and respond to changes in demand or product mix
- Automates Kanban card management
- Explodes end item demand directly from Material Requirements Planning to create demand for dependent items
- Level mix workbench helps manage buffers ahead of pacing operations

Lot Trace Workbench extends track and trace capabilities with visibility of current and historical lot-controlled inventory to support returns, recalls and audits.

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| QAD Manufacturing Core Components | Available to Promise | Inventory Management |
| | Lean Manufacturing | Lot Trace Workbench |
| | Master Planning and Scheduling Workbench | |
| | Material Requirements Planning | Product Genealogy |
| | Production Orders | Regulatory Attributes |
| | Serialization | Shop Floor Control |

- Provides forward and backward tracing, whether initiating a trace from raw material or from shipment
- Helps identify the root cause of product quality issues quickly

Master Planning and Scheduling Workbench provides planners and schedulers simultaneous visibility into plans, schedules and all supporting data, and enables control and collaboration across the production and materials planning space.

- Shows up-to-the-minute information, including plans, orders and shop floor feedback
- Exception alerts alert users to critical demand, supply or capacity issues

Schedule changes automatically update ERP and communicate new priorities to the shop floor. Materials Requirements Planning (MRP) accurately determines purchased and manufactured material requirements to meet demand.

- Calculates projected inventory, schedule and planned orders by utilizing a site's master schedule and alternative sources
- Performs MRP planning activity by site independent of inventory, demand and supply at other sites

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Product Genealogy tracks custom item and lot attributes such as specifications, test results and potency across the production process.

- Assigns key product specifications to raw material, components or sub-assemblies
- Tracks components and finished products through manufacturing and distribution
- Enables tracking and tracing of lot numbers and serial IDs simultaneously

Production Orders allows companies to manage and monitor manufacturing and shop floor operations with a single, centralized solution.

- Establishes flexible policies for allocations, picking and issuing goods by component
- Provides comprehensive visibility of material movements and ensures material availability at point of use
- Extends and improves material movements from store room to shop floor

SOLUTION DETAIL CONTINUED

Regulatory Attributes helps meet compliance requirements such as current Good Manufacturing Practices (cGMP), Quality System Regulations (QSR), NAFTA and GATT.

- Assigns default inventory attributes, such as assay percentage, grade, expire date and inventory status
- Maintains controlled substances and regulatory agencies lists and links regulatory control numbers to an address code or site

- Restricts items issued to work orders to those listed on the bill of material (BOM) or valid substitutes

Serialization provides complete serial number tracking history from finished goods back to the supplier's lot.

- Supports Waste Electrical and Electronic Equipment (WEEE) and Recycling of Hazardous Substances (RoHS)
- Provides traceability for food security regulations and tracks potential contamination issues

- Product liability tracking supports warranty recalls and investigation

Shop Floor Control tracks activities and records operations status and labor times for manufacturing jobs.

- Uses work order routing to calculate usage variances, efficiencies and utilization
- Supports repetitive environment rate, usage and method variances for both labor and burden
- Tracks and records labor, material and machine data from shop floor devices

RELATED SOLUTIONS

QAD offers several related solutions to **QAD Manufacturing** that help meet special manufacturing needs.

QAD Automation Solutions improves material effectiveness by collecting material/production data and printing labels according to manufacturer, supplier and/or customer formats

- Easily develop material and production transactions
- Includes transactions for inbound, outbound, production, inventory management and packaging
- Compliant with GS1 and 2D barcode standards
- Automates label formatting and printing for any format and printer

QAD Enterprise Asset Management provides equipment, tools and rotatable inventory maintenance, with MRO procurement and capital asset costing.

- Schedule preventative/predictive

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| QAD Manufacturing Related Solutions | QAD Automation Solutions | QAD Just-In-Time Sequencing |
| | QAD Enterprise Asset Management | QAD QMS (quality management system) |

maintenance based on elapsed time or usage

- Use up-to-date cost analysis for parts, labor and contractor service
- Reserve critical parts and transfer expensive parts between sites
- Accurately determine repair or replace cost effectiveness

QAD Just-in-Time Sequencing

manages material flow to OEMs by sequencing customer deliveries with the correct items, delivered on time.

- Enables just-in-time replenishment for OEMs that want zero inventory
- Sequences and directs inventory to one or more delivery docks that correspond to different line-side inventory locations at the OEM

QAD QMS (quality management system) establishes quality processes that comply with government regulations and industry requirements.

- Provides supplier access to corrective actions; manages supplier certification and automates supplier grading
- Supports APQP, CAPA and gauge calibration schedules
- Streamlines audits including scheduling, notifications, linking to historical documents, generating reports and escalation.
- Includes tools to assess risk with heat maps and mitigation plans

For more information on how the QAD Manufacturing and related solutions can help your company, please contact QAD at +1-805-566-6100 or email info@qad.com.

