

# INDUSTRIAL AND HIGH TECH CONTRACT MANUFACTURING

## Benefits

**Product genealogy and serialization tracking of outsourced production**

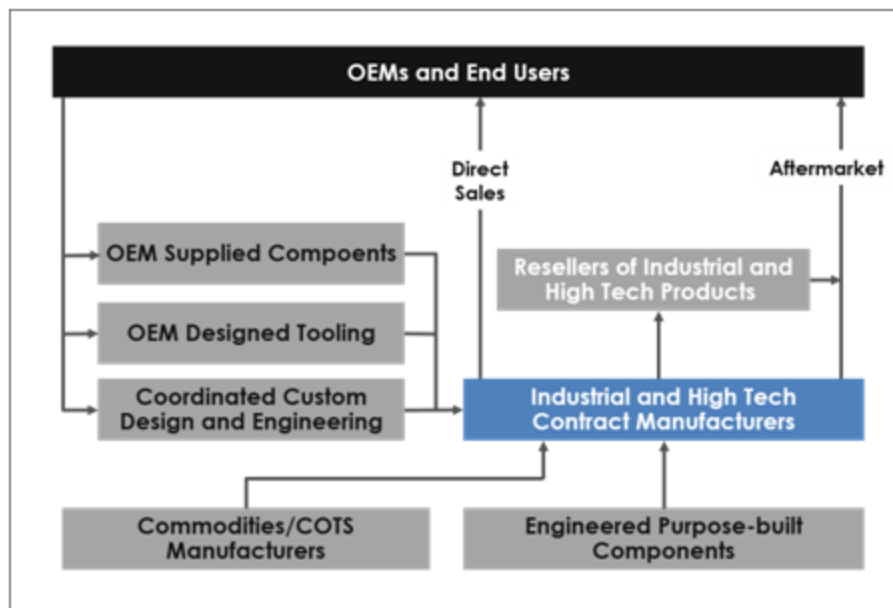
**Integrate quality directly into core business processes**

**Improve supply chain governance and visibility**

**Establish consistent global processes**

QAD offers a unique solution for contract manufacturers that serve industrial and high tech manufacturers. The solution includes the full-featured QAD Cloud ERP and related capabilities that help contract manufacturers adapt to changing business models, improve forecast accuracy, drive operational and value chain efficiency, improve Delivery In Full On Time (DIFOT) and meet product genealogy and serialization data capture requirements.

### Industrial and High Tech Contract Manufacturing Value Chain



Key capabilities of the QAD solution include material traceability, demand planning, supply chain execution, quality management and global financials. These and other capabilities provide contract manufacturers control of manufacturing processes while meeting compliance requirements, controlling risk and continuously improving operations that align with business strategy.

**Reduce manual costs and errors** by automating complaint management and quality related

processes.

**Increase inventory turns, reducing inventory** by using sophisticated forecasting methods and detecting demand forecast changes as they happen.

**Improve DIFOT for customers** through better supply chain insight and accurate tracking of in-process inventory.

**Double utilization** through better material planning and handling.

## **QAD Industrial and High Tech Contract Manufacturing Solution Overview**

Contract manufacturers that serve industrial and high tech manufacturers face a highly competitive and fragmented market that drives down prices while forcing contract manufacturers to evolve offerings. Contract manufacturers, therefore, constantly look for ways to differentiate themselves and deliver novel solutions.

In the value chain, contract manufacturers maintain intimate relationships with their customers who often are OEMs or product end users. Contract manufacturers deliver product(s) unique for each customer which may include collaborative design and engineering. The manufacturing often includes the use of tooling or complete equipment sets that remain the property of the customer. In some cases, components or raw materials that make up the product may be delivered by the customer. This intimate connection requires close tracking of material consumption and transfer of materials without invoicing or traditional acquisition processes.

Alternatively, contract manufacturers may acquire the components and raw materials. Some resulting products are delivered in a standard format while others are purpose-built and unique to the manufacturer. In most cases, contract manufacturing services are sold directly to customers, though some contract manufacturers use a network of representatives or service resellers. Aftermarket fulfillment may be supplied by the contract manufacturer but it is often performed with the originating OEM or end user.

Contract manufacturers need to simultaneously manage and meet multiple customer requirements requiring fast cycle times and reduced batch sizes, all while meeting complex data collection and genealogy tracking requirements. To address this business environment while controlling costs, executives constantly look for efficiencies and flexibility and closely monitor key operational metrics like DIFOT, capacity utilization, inventory turns, quality assurance cycle time, yield and manufacturing cycle times.

The following are key capabilities provided by QAD's full-featured solution to help contract manufacturers successfully address their challenges and sustain growth.

[Planning and Scheduling Workbenches](#)

[QAD Automation Solutions](#) – Shop Floor Data Collection and Label Printing

[QAD QMS \(Quality Management System\)](#)

## Item Level Serialization

## Lot Trace Workbench

[QAD Supplier Portal](#) – Supplier Management

[QAD DSCP \(Demand and Supply Chain Planning\)](#)

[QAD EAM \(Enterprise Asset Management\)](#)

[QAD BI \(Business Intelligence\)](#)

[QAD Cloud EDI – Interoperability](#)

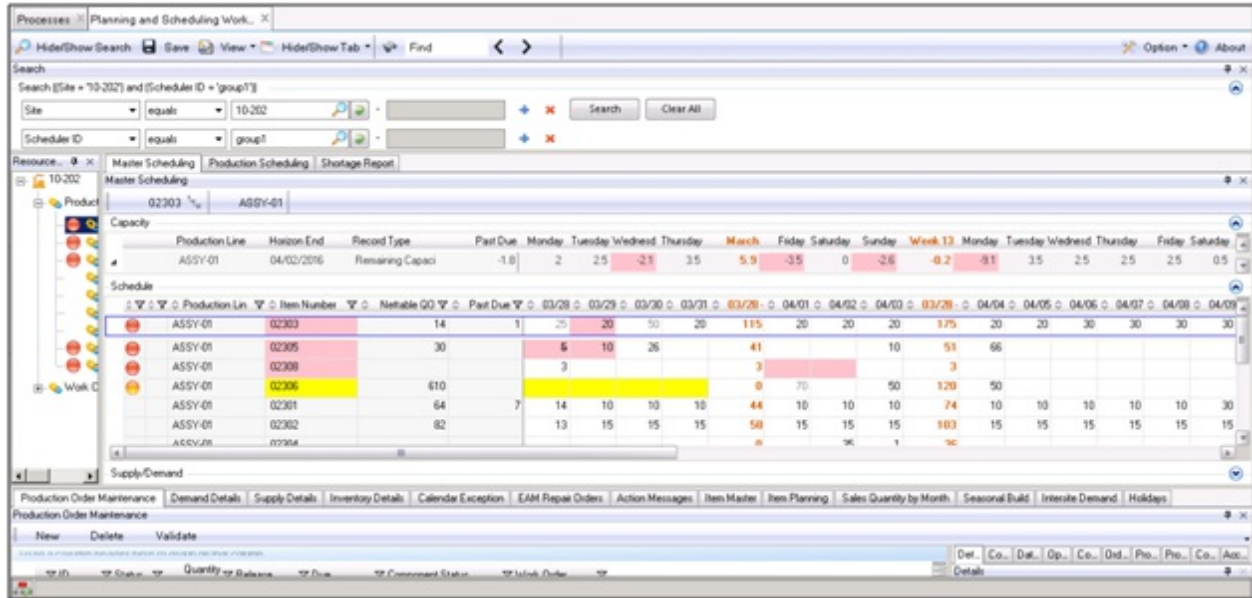
An overview of the first three capabilities follows. For information about the other capabilities, please visit [QAD.com](http://QAD.com).

## Planning and Scheduling Workbenches

QAD's Planning and Scheduling Workbenches **generate more reliable production plans, manage exceptions proactively and help contract manufacturers respond to changing conditions**. This improves the quality of production plans with a **direct, positive impact on manufacturing schedules, manufacturing efficiency, asset utilization and inventory effectiveness**.

Planning and Scheduling Workbenches provide schedulers total visibility of demand, supply, inventory, capacity and production, displayed in an intuitive spreadsheet-like workbench. Planned production, alternative resources, changes in customer demand, inventory levels, safety stock, forecast, capacity and planned maintenance schedules are centralized and managed. Schedulers interact directly with the schedule using color-coded alerts that focus attention on potential issues.

**Planning and Scheduling Workbenches View of Production Lines Including Capacity, Schedules and Supply/Demand Data**



Production Line	Horizon End	Record Type	Part Due	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Week 13	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
ASSY-01	04/02/2016	Remaining Capaci	-1.0	2	2.5	-2.1	3.5	5.9	-3.5	0	-2.6	-0.2	-0.1	3.5	2.5	2.5	0.5
ASSY-01	02303		14	1	25	20	50	20	115	20	20	175	20	20	30	30	30
ASSY-01	02305		30		5	10	25		41		10	53	66				
ASSY-01	02308				3				3			3					
ASSY-01	02306		610						0	70		50	120	50			
ASSY-01	02301		64	7	14	10	10	10	44	10	10	10	74	10	10	10	10
ASSY-01	02302		82		13	15	15	15	50	15	15	15	103	15	15	15	15
ACCY-01	02304										1						

## QAD Automation Solutions

QAD Automation Solutions improves contract manufacturers' material transactional effectiveness by aligning ERP with material processes. The two primary components are:

**Data Collection** captures material and production data through simplified ERP transactions using a mobile device such as a radio frequency (RF) scanner, tablet or a stationary shop floor personal computer or terminal.

**Label Printing Services** routes and prints labels associated with material and production transactions based on manufacturer, supplier and customer formats and rules. The services support any label format and any printer and are GS1 and 2D compliant.

Automation Solutions acts as a highly configurable set of capabilities that requires no coding to be applied to a wide variety of manufacturing environments, specifically:

**Transaction Development Toolset** reduces customizations by simplifying the development of material and production transactions through the configuration of QAD Service Interface.

**Transaction Library** provides out-of-the-box transactions for inbound, outbound, production, inventory management and packaging for ERP functionality. The library extends to QAD Enterprise Asset Management.

**Transaction Processing Engine** ensures failure free transaction processing through QAD core SI-API processing and interactive record locking management.

**Transaction Linking** combines multiple transactions to create a unified and simplified transaction, aligning with material handling and production processes.

**Label Mapping/Routing Toolset** easily maps to QAD material and production data to select the right label format and to print to the correct printer.

## Automation Solutions Integrate Data Collection and Label Printing



### QAD QMS (Quality Management System)

Contract manufacturers commit significant resources to sustain product quality. An automated quality management system is critical to track and meet customer and regulator expectations. QAD QMS helps contract manufacturers address quality related KPIs like Compliant Tracking and GMP Compliance, and helps track measures like CAPA Efficiency, Open Complaints and Lot Acceptance Rate. Major capabilities include:

**Auditing management** helps assure that well-defined business processes apply throughout supply chains, and generate the results expected. When processes are not meeting expectations, corrective actions are initiated to quickly resolve exceptions.

**Document control** helps manufacturers manage critical documents like Standard Operating Procedures (SOP) in a centralized repository that works with automated workflows to ensure compliance. Built-in controls ensure that document changes also update related procedures and initiate retraining.

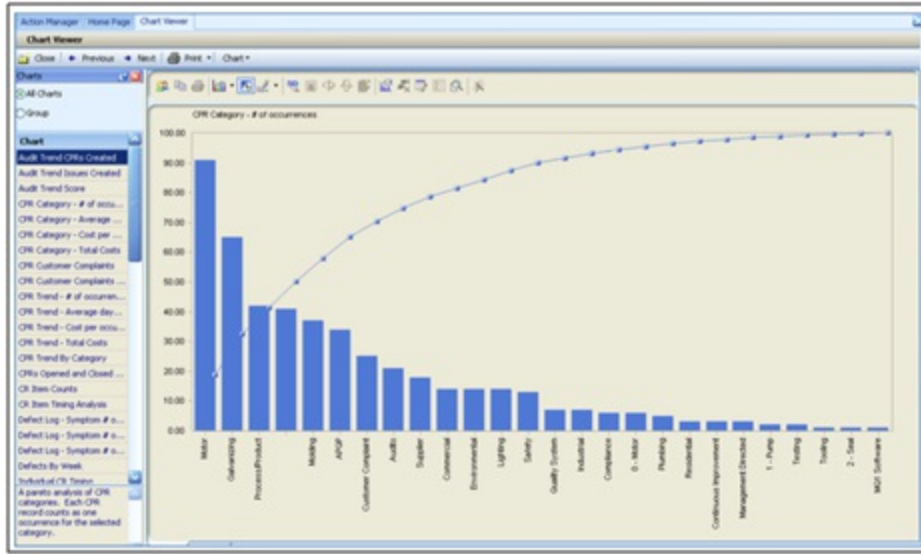
**Corrective Action Preventative Action (CAPA) and Nonconformance Reporting (NCR)** provide an automated closed loop solution for problem tracking and resolution, including impact on other processes or products.

**Training management** tracks each employee, each role, skills associated with that role and training requirements for those skills. Training may be recurring, competency based, or required due to a controlled document change.

**Risk management** enables contract manufacturers to define each risk, prioritize the risk, create a heat map and mitigation plans with action items and related reporting.

**Supplier management** helps to evaluate and select suppliers based on their ability to supply product in accordance with requirements. Supplier performance increases when suppliers are consistently evaluated, monitored and measured.

### QAD QMS Defect Tracking Analytics



For more information on how the QAD solution for industrial and high tech contract manufacturers can help your company, please contact QAD at +1-805-566-6100 or email [info@qad.com](mailto:info@qad.com).