



# Advanced Manufacturing Solution for SAP Business One N'ware Technologies

## ERP Solution for Small and Mid-sized Enterprises in Discrete and Process Manufacturing

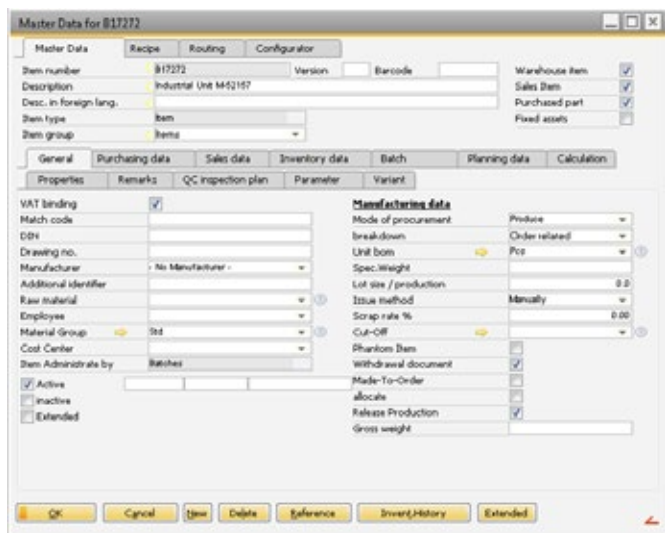
SAP Business One supports manufacturing planning, control and implementation in small and mid-sized manufacturing companies in different ways – as much as necessary and as little as possible – with precise to ensure the efficiency and flexibility in the daily business. The business process of the customer takes the center stage. The advanced manufacturing module provides best practice - oriented methods and workflows that fit for major manufacturing industries like metal and plastics processing, machinery and apparatus, electrical/electronic equipment, automotive, packaging, chemical engineering, food.

### Master Data enhanced for Logistics and Manufacturing

The source data form the basis for the implementation of company - wide business processes as well as all possibilities for gathering information and making decisions. The advanced manufacturing module complements SAP Business One provides the information which small and medium-sized companies need for manufacturing management, cost accounting and controlling.

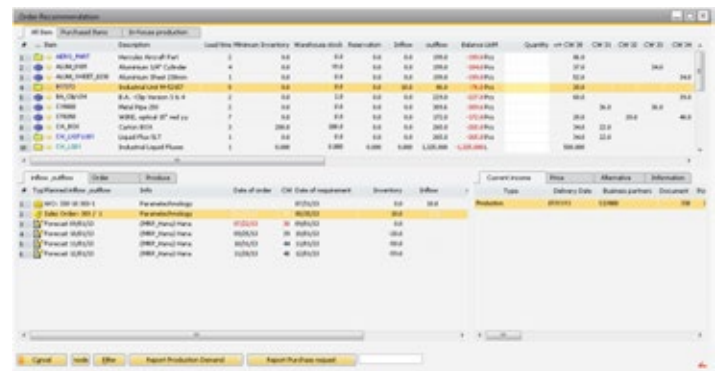
### Industry-specific extended master data in particular

- Item
- Bill of Materials / Recipes
- Routings
- Operations
- Resources (groups, machines, personnel, tools)
- Cost centers
- Tool management



### MRPII and Production for different Strategies / Organizations

The manufacturing functions include specific strategies / functions for materials management: order and stock related production, mixed and variant production as well as the necessary functions for the appropriate production planning and execution of manufacturing orders.



In addition to the usual standard features some specially extended areas shall be mentioned:

### Materials management:

- Multiple material requirement models
- Additional options for the control of goods receipt
- Retroactive postings based on demand to work order
- Unscheduled postings based on demand to work order
- Extended batch processing and serial number processing
- Extended inventory
- Mobile data collection for warehouse / bin location



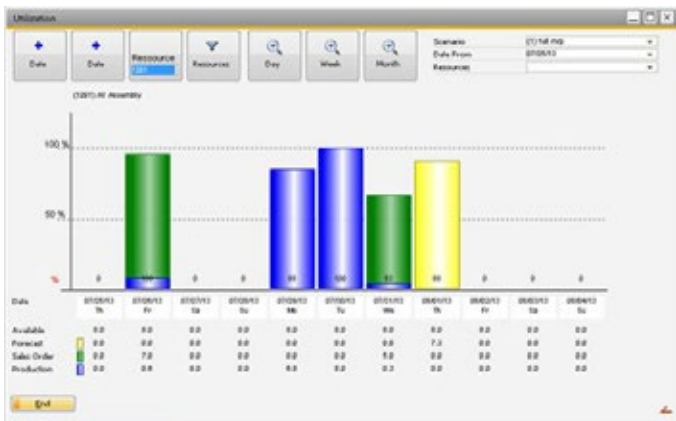
## Production order management:

- Extended MRPII functionality allows a fully integrated rough cut capacity planning as described below
- Create orders: different workflows to create work orders can be defined. The customers are able to select the appropriate methods according their business processes.
- Comprehensive planning and execution of external production and supply parts

## Rough Cut Capacity Planning

The functions for rough general planning include the areas of material and capacity requirements planning.

- Rough planning of material requirement Parameterized MRPII methods e.g. for general planning and simulation of partial orders or annual budgets. For more information, see materials management / MRPII.
- Capacity planning: Rough-cut capacity planning shows in a transparent way available, used and unused capacities for resources.
  - By machine, machine groups, personnel
  - With graphic tools for evaluation and reports
  - With selection of efficient use of resources within the same group, alternative resources and tools



## Detailed Planning (Pool Monitoring)

Pool control is an efficient way to plan resource groups or resources. The pools can be defined with certain volume

of work. By scheduling the production orders, these pools are filled with operations. Flexible reports and graphs provide the necessary transparency to process the right jobs at the right time.

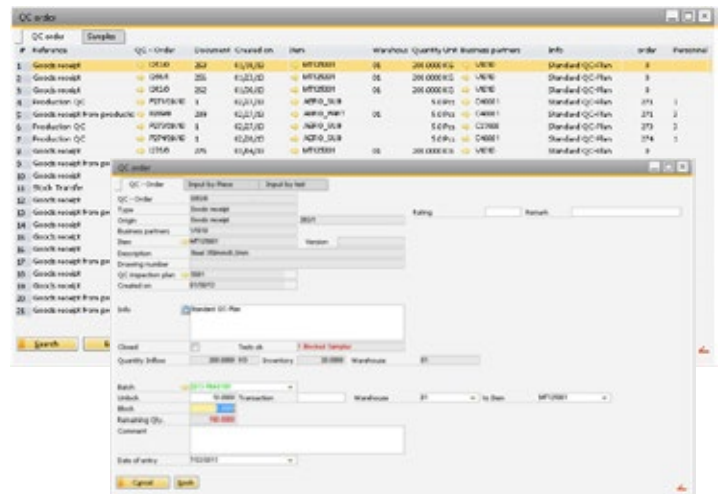
- Automatic pooling with start date / progress of the operations
- Operations available, first planned, behind schedule
- Easy rescheduling of operations
- Rush orders
- Recalculation of utilization pools using priorities
- Online check of material availability

## Quality Control

In addition to fulfilling high quality standards, most small and medium-sized manufacturing companies must also be able to document them. SAP Business One offers efficient functions which allow to plan and execute the necessary quality tests during the material flow, from initial procurement across manufacturing until shipment. Various kinds of test orders can be assigned to external as well as internal working steps (operations).

### The module includes, among other things:

- Manage quality control plans
- Quality control by orders from goods receipt through production to delivery
- Monitoring Expiration dates
- Release / block Check, release, block batches and serial number parts
- Order history
- Capture and analyze customer complaints, suppliers, internal production





## Pre-calculation

Whether you want to prepare estimates for standard products with different lot sizes or customer-specific designs for quotations or manufacturing orders, the pre-calculation makes different possibilities available to you.

### Highlights of this very flexible module are:

- Calculation scheme freely definable
- Automatically create and manage calculation structures
- Simulate alternative scenarios by changing the formula structure
- Calculation and reporting of marginal costs and full costs and profit contribution
- Production orders can be created from the calculation structure
- Batch calculation with creation of price lists
- History of calculation data

be parameterized such that a highly flexible and differentiated assignment of work in process is possible.

- Several calculations in parallel
- Comparisons of target/actual with drill-down procedure of order for assemblies up to individual movements
- Batch calculation with selection of different evaluation criteria
- Flexible differentiable WIP using the chart of accounts from SAP Business One

## Product Configurator

The product configurator allows the management of product variants. In a quotation or sales order a user friendly guided question/answer process can be started to configure, calculate and integrate the products.

The structure of products is based on the master data, such as items, BOMs, routings and can also be used without manufacturing, i.e. as standalone with SAP Business One quotation and sales order processing.

Item	Description	Quantity	Unit	Cost	SMC	TSM	JMC	COGS
40 F12088	Contact Housing, 19 mm, 500V	1.000	Nu	1.890	1.890	0,00	0,00	1.890
60 F79344	O-Ring, M6 2367	1.000	Nu	20,00	20,00	0,00	0,00	20,00
10 2600	Milling	4		4,00	16,00	0,00	0,00	16,00
20 1300	Welding for metal	2		2,00	4,00	0,00	0,00	4,00
30 1201	Assembling	3		3,00	9,00	0,00	0,00	9,00
Material Costs by Bill of Materials				2.110				2.110
External processing				0,00				0,00
Material Extras				0,00				0,00
Direct Material Costs				2.110				2.110
Indirect Material Costs				0,00				0,00
L+M costs				0,00				0,00
Indirect Production Costs				0,00				0,00
Costs of goods sold				2.110				2.110
Shipping cost				0,00				0,00
<b>Total</b>				<b>2.110</b>				<b>2.110</b>

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Indirect Material Costs	
L+M costs	
Indirect Production Costs	
Costs of goods sold	
Shipping cost	

## Concurrent and Post-calculation, Work in Progress

At any time the actual accumulated costs of a work order, the comparison with the planned costs or the profit margin are provided. Whether as full, marginal costing or contribution margin can be determined by the individual design of the calculation scheme. Further, the data can

Item/Service Type	Item	Quantity	Unit Price	Disc.	Price after Dis.	Tax	Gross Price	Tol.
1	Softs	1	EUR 1.200,00	0,00%	EUR 1.200,00		EUR 1.200,00	
3				0,00%				

Starting from the product selection for exclusive pricing, from simple material lists to the fully-integrated manufacturing, all applications are possible. Efficiency is maximized.

- Allows the creation of multilevel decision structures with variables, formulas, rules, wildcards, graphics, etc.



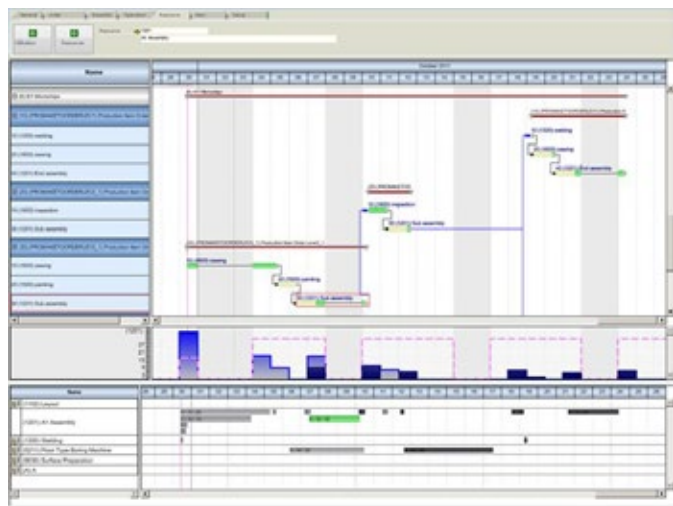
- Automatic generation of a user-friendly menu for configuring the product
- For more complex variant products or applications shortcuts to the fields of information (e.g. items, BOMs / recipes, routings) are available. Their contents / values can be influenced with vast potential to be effective in generating the desired product variant.

### Advanced Planning and Scheduling (APS)

APS is used for detailed planning in enterprises, if order times, lead times, transition periods, capacity allocations, availability of resources are critical parameters in the value creation process. By graphical visualization and comparison of all activities with resources, a high level of transparency is achieved, where and how intervention is required.

#### Some of the most important features:

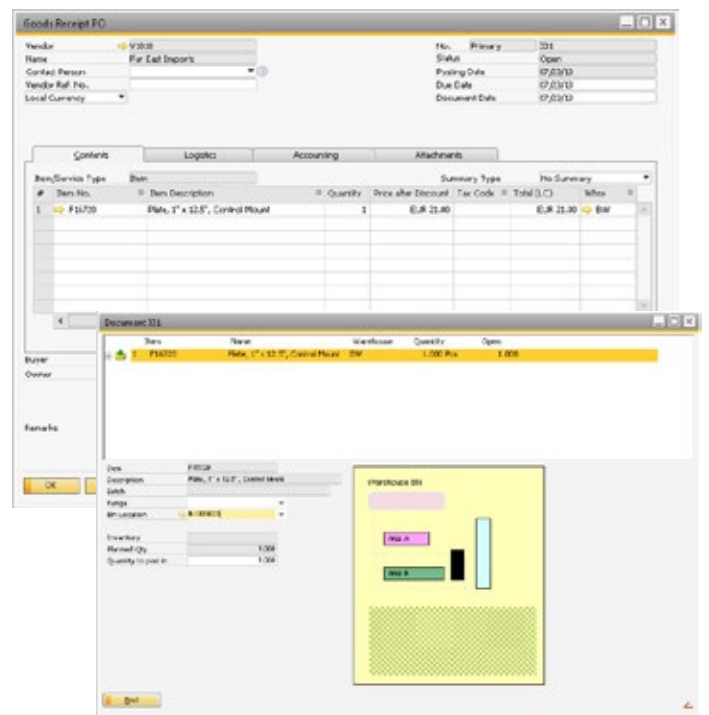
- Work order and resource-oriented customizable graphical views and charts
- Various ways to order and operation sequence planning and optimization with/without capacity limits
- Dependencies in multi-level orders with cross-checking the delivery dates are considered
- Simple selection or change of resources such as machinery or tools
- The integrated material availability calculation can be enabled/disabled and reports automatically missing parts during every planning and scheduling process.



### Multiple Warehouse / Bin Location Management

The warehouse / bin location management extends the standard functionality of inventory management on the one hand and to the nature of the stored goods on the other hand. It can be used as a single module with SAP Business One.

- Extended warehouse management
  - With/without consideration in (MRP)
  - User-defined warehouses / bin locations with up to 3 dimensions based on vector graphics
  - Different to- and from-bin strategies
- Kind of stored goods
  - With batch/serial number or expiration date
  - Inventory with parameterized counting lists and inventory registration



### Mobile Solution Warehouse Management

The functions of warehouse management are also provided for mobile devices (Windows Mobile). These communicate via wireless LAN directly to the server, therefore the information on the mobile devices is always up to date. The mobile data collection is versatile in various combinations with other modules.



### Key functions:

- For logistics companies, SAP Business One with or without Warehouse Bin location management, with or without SCM
- As a complete solution with manufacturing
- Warehouse information, booking process as posting, charge-off, transfer, goods receipt
- Inventory and Quality control



### Cost Accounting, Machine Hour Costing, Marginal Costing

The cost accounting feature enables you to set up a classical operational accounting system based on European models, but not only this! It facilitates the presentation of all values and quantities from SAP Business One General Accounting, Payroll and Manufacturing. As a result, you can expect to see the customers, orders and products with which you have really earned money over a certain period from the extended contribution margin calculation.

### Key functions:

- Cost accounting
  - Cost Element and Cost Center accounting
  - Divide cost elements into fixed and variable costs by cost center
  - Budget non-accrued incidental cost elements
  - Re-allocate cost centers
  - Short-term Income
- Contribution costing
  - Customer- or order related
  - Profit contribution by period, customer, order, item
- Machine Hour Rate Calculation
  - Full cost rates and marginal cost rates per machine
  - Calculate hourly rates by planned and actual hours

### Time Recording & Production Data Collection

If the times of your employees are of value for you and for a variety of uses a transparency is necessary, attendance module should be used. If you need an up-to-the-minute overview of your manufacturing orders or if you want low-administration feedback of such operating data as times, conditions, quantities of goods, etc., for example, via Barcode, then the operational data collection is the right choice for you.

- The hardware and communication technology of KABA Benzing or PCs with barcode readers are supported, other technology available on request



- Enhanced master data and Models for Time and attendance
- A variety of information on attendance, absences
- information about jobs to be produced and the status of operations, availability of material required
- Comprehensive data collection about operations, materials, yield, scrap, quality data, etc.

Order no.	Order date	Order type	Order status
010000	2010-01-01	01	01
010000	2010-01-01	01	01
010000	2010-01-01	01	01
010000	2010-01-01	01	01
010000	2010-01-01	01	01
010000	2010-01-01	01	01



- Pool info: this advanced manufacturing functionality provides the possibility to work in the factory with no any paper.
  - Each worker is able to access to the available operations in his area.
  - Information about the status of the required materials is displayed.
  - Workers can easily open shared documents or pictures.

The screenshot shows a software interface with a 'Layer Cut' diagram on the right and a 'Logged out!' table on the left. The table has the following data:

Item	Description	Quantity	booked	Remaining C	Inventory
Part_100_200	Part_100_200	20,000	0.0	20.0	4.0 Pos
MT125001	Steel 250mmx3mm	100,000	0.0000	100,000	25,000 HD
F10024	S. 10" x 1/8"	60,000	0.0	60.0	0.0 Pos
F10024	WIRE, 1/2" green	40,000	0.0	40.0	0.0 Pos
F10020	Box, 1" x 12.0", Control Mount	10,000	0.0	10.0	0.0 Pos

### Key functions:

- Warehouse management
- Supports bin location management and all material transactions
- Warehouse information, Inventory
- Quality control operations
- Direct print of labels and reports
- Time recording, Production data collection
- Pick & Pack

We can provide an own integrated WEB-Server for XML and HTML-5 applications. Thus, full compatibility is guaranteed for present XML-based devices like KABA Benzling as well as for future development in HTML 5 standard.

### Machine Data Collection, Direct Machine Connection

Based on connected machine data collection terminals automatically transmit of start and end time or duration, status of operation, set up, runtime, cycle time, downtime, breakdowns, produced quantities of first pass quality, scrap. Process data and quality data e.g. temperature, pressure, in application of special software like Intellution can also be processed.

These integrations are implemented and analyzed case by case.

### Mobile Solutions (Web Apps)

The advanced manufacturing features can be accessed by any handset which has a browser, (cell phone, smartphone or industrial scanner). You are always up to date with the current data available on your handheld device and you have the possibility to intervene directly.



One click setup: The required web server as well as the web application is set up and configured automatically. You can decide which employees or which device has access on specific apps. The number and type of apps will be extended continuously.

### Supply Chain Management (SCM)

The advanced SCM feature supports sales order as well as purchase order management including blanket orders and all automated transactions per EDI industry standards.

The advanced SCM feature is tailored for automotive industry for companies with own manufacturing as well as for refiner/logistic service supplier and trading companies. Product delivery can be released manually or electronically from blanket orders.

- Sales / Delivery with blanket orders, delivery scheduling, detailed planning horizons, scheduling delivery proposal, Pick&Pack, cargo.
- Purchase / Goods receipt with blanket orders and scheduling / Control of supplier's goods receipt
- Communication management / EDI supporting the industry specific standards VDA, Odette, EDIFACT and ANSI X.12
- Packaging structure and container management



## Project Management

- Project cockpit
  - Multi-level project structures
  - Comprehensive access to tasks, activities and areas like budget, purchasing, sales, production, service, attachments (documents)
  - From overviews to single documents
- Range from simple to complex projects
  - Definition of simple projects with tasks, milestones and resources until networks including engineering, production, suppliers and customers
- Multi-level scheduling
  - Tasks, milestones, detailed plans, MRPI/MRPII, APS (Advanced Planning and Scheduling)
  - Bar and Gantt charts until bidirectional integration and usability of MS-Project
- Budget and controlling
  - Multi-level budgets at level project
  - Collection of all documents from sales, purchasing, internal / external manufacturing, services and all sorts of costs / expenses

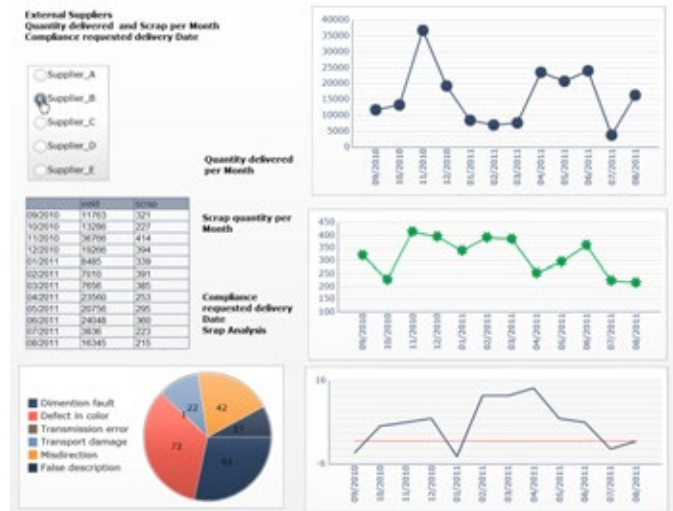
## Dashboards for manufacturing companies based on SAP BusinessObjects

SAP BusinessObjects Edge BI as a Business-Intelligence Software for mid-sized companies contains solutions for operative reporting, for flexible Ad-hoc-queries and analyses, for dashboards and visualizations, for scheduling and budgeting.

### Dashboards

- Added value trend
  - Analysis: per order and item groups, per time unit, planned and actual values, forecasts
  - Progression: diagrams of periods
  - Order controlling
- Productivity
  - Progression based on attendance times and confirmed work orders

- Purchase analyses, for example:
  - Delivered quantity vs. scrap
  - Delivery times and compliance
  - Complaint reasons



- Cost analysis of work orders
  - Labor time: planned costs vs. actual costs
  - Materials: planned costs vs. actual costs
  - Comparison on monthly basis by item groups



With the advanced dashboards feature you get a fast and consolidated overview on the performance of your company. Enhance the efficiency of your company by getting the best possible analysis of your data, examine different scenarios, simulate new business opportunities and take immediate measures if necessary.



**SAP**® Business One

The SAP® Business One application offers a single, affordable way to manage your entire business – from sales and customer relationships to financials and operations. Designed specifically for small and midsize, it helps you streamline processes, act on timely information, and accelerate profitable growth.

## About N'ware Technologies

N'ware Technologies is an expert in the field of business applications software. Since 1995, N'ware has offered feature loaded software solutions for small to mid-size businesses (SME) with more extensive requirements. We provide clients with the technological foundation to develop, grow and stay ahead of changes in this competitive environment. N'wares' values are at the core of day to day operations and have guided our actions since our inception: Integrity, Respect, Teamwork and Commitment to all.

N'ware's mission is to provide small and medium sized distribution or manufacturing businesses with business management solutions and services. Our goal is to help our customers optimize processes in order to increase productivity, customer service and profitability.

We work with a complete commitment to our customer's success, while leveraging our experience and expertise with industry leading solutions and technologies.



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