



# Global 3000 Design Specification Manufacturer Overview

|                |                       |         |
|----------------|-----------------------|---------|
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| <b>Project</b> | Manufacturer Overview |         |
| <b>Version</b> | 3                     | 1 of 13 |

# Overview

**Introduction** Manufacturer handles all aspects of the works ordering cycle from the entry of orders through picking, allocation and issuing components to completion. It includes batch and serial number tracking to meet the needs of organisations operating BS5750/ISO9000 quality systems.

**Integration** The following Global 3000 modules are used in conjunction with Manufacturer:

- **Sales Order Processing (SOP)**, which can create works orders in response to stock shortages during sales order entry.
- **General Ledger**, which receives postings for issues, receipts and returns.
- **Stock Control**, which maintains the stock balances at each location and provides batch tracking and serial numbering facilities.
- **Product Maintenance**, which is an integral part of Manufacturer. It provides all the distribution modules with a central record of product, unit, location and related details.

**Assembly bills** An assembly bill defines the list of components and quantities required to manufacture a finished product. An assembly bill may contain any combination of :

- **Component line**, a line containing a quantity of a component required to manufacture one stock unit of the finished product and the location from which the components are to be drawn.  
  
A component may be a stocked product, non-stocked product, service or extra.
- **Comment line**, a line containing comments only. These can optionally be printed on reports and documents.
- **QC line**, a line containing a QC stage that needs to be processed as part of the manufacturing process.

**Maintaining** Product maintenance allows you to maintain an assembly bill for a stocked product.

**Replace components** The replace component function allows you to search for all occurrences of a selected component and optionally replace some or all of them with a new component.

**Works Orders** A works order consists of an order header detailing the finished product being manufactured and a set of order lines identifying components used in the manufacture, work instructions (comments) and QC stages.

Works order lines are generated from the assembly bill of the finished product being manufactured. Component quantities are calculated based on the quantity of the finished product being manufactured.

**Works order cost** If enabled, an estimated cost is calculated at the point of works order entry based on current stock positions.

An actual cost value is calculated as components are issued and products are completed.

Both costs can be viewed in enquiries to allow comparisons to be made.

**Sub-assembly** When works orders are created, if there is insufficient stock of a sub-

|                |                       |         |
|----------------|-----------------------|---------|
| <b>Author</b>  | David Featley         |         |
| <b>Project</b> | Manufacturer Overview |         |
| <b>Version</b> | 3                     | 2 of 13 |

**works orders** assembly (a component part of a finished product that has an assembly bill as well), you have the option of creating an additional works order for the stock shortage.

Completing a sub-assembly works order, allocates the new stock to the line on the works order that had the shortage.

## Works Order Processing Cycle

**Works Order entry** A works order is initially entered specifying the product to be manufactured, the quantity, when it is required and the location to which the finished good are to be received (the finished goods location may be overridden during completion if required).

**Allocation** Allocating a works order allocates all the component stock to the order providing suggested batch and serial numbers where required.

**Picking** Picking a works order prints a picking list detailing components required to manufacture the order and highlighting any component shortages.

**Component issue** The issue of components to the works order reduces the available stock of the required components and transfers the value of the issued components from the stock value account to WIP. Where components are batch tracked or serialised, the user is asked to confirm which specific items of stock are to be issued.

Unless a costing method that permits negative stock is in use, the system does not allow an issue to take place that would result in the balance of any component stock being reduced below zero. If this occurs, then the order will be part issued.

**Order Completion** The final stage allows you to complete a works order. This places the finished products into stock reducing WIP by the cost of components used, increasing stock value by the value of the finished goods and posting any difference between the two to cost variance. If the finished product is batch tracked or serialised, you are asked to specify batch and serial numbers at this point.

An order may be part completed with final completion taking place at a later point in time. Alternatively, part completion may take place with the remaining balance cancelled.

Completion can be configured to use either the actual cost of components used in the manufacture, or the standard cost of the finished product as the basis for the value of the finished goods. In either case there is an option that allows users to override the value of the finished goods.

Completion of a sub-assembly works order, allocates the finished items to the works order line with the original shortage.

**Works Order Status** The works order status reflects the current stage a works order has reached in the processing cycle.

**New.** A works order has been entered but has not yet appeared on a picking list.

**Part Allocated.** All components have been printed on a picking list but some components have not been allocated due to insufficient free stock.

**Allocated.** All components have been allocated and printed on a picking list. No issues have taken place yet.

**Part Issued.** Some components required to manufacture the finished

|                |                       |         |
|----------------|-----------------------|---------|
| <b>Author</b>  | David Featley         |         |
| <b>Project</b> | Manufacturer Overview |         |
| <b>Version</b> | 3                     | 3 of 13 |

product are still to be issued to the works order.

**Issued.** All components required to manufacture the finished product have been issued to the works order, but no items have been completed yet.

**Part Complete.** A works order has been part completed. There is still an outstanding quantity of the finished product awaiting completion.

**Complete.** A works order has been completed.

It is possible for a works order to be part allocated, part issued and part complete at the same time. Where an order has lines in many states, its overall status is the one closest to completion, e.g. a works order that has had some items completed is shown as “Part Complete” even if there are works order lines waiting to be allocated or issued.

**Works Order Entry** Works Order Entry allows the following options.

**Enter Works Order.** Enter the details of new works orders.

**Amend Works Order.** Update existing works orders.

**Delete Works Order.** Delete existing works orders.

There are parameters to determine:

- If component stock is to be allocated immediately.
- If individual lines can be amended, deleted or new lines added.
- If sub-assembly lines with shortages can be further exploded into component lines or should themselves generate addition works orders.
- If an optional sales order number is to be prompted for.

**Document numbering** Works orders can be numbered either manually or automatically. The order number can be up to eight characters in length and this can include a prefix of up to four characters placed at the front of the automatically generated number; for example WO000123.

**Allocation** The Allocation process performs the following functions.

- Compares the current un-allocated works order lines with available component stock and allocates where available.

*Note* Allocating a works order line reduces the free stock of the component.

- Establishes notional batch and serial number usage for batch tracked and serially numbered components.

*Note* For batch tracked and serially numbered components, the batch & serial numbers that would be used if the component stock were being issued rather than allocated are recorded at allocation and presented as preferred stock details on the picking list. At issue, if the preferred stock is no longer available, these details can then be amended to reflect the batch and serial numbers of the stock actually issued.

Works orders to be listed for allocation can be selected according to the following criteria.

- Works order number

|                |                       |         |
|----------------|-----------------------|---------|
| <b>Author</b>  | David Featley         |         |
| <b>Project</b> | Manufacturer Overview |         |
| <b>Version</b> | 3                     | 4 of 13 |

- Finished goods location
- Manufactured product
- Picking list number
- Sales order number

The allocated stock figure maintained within distribution is the total of stock allocated to sales order plus the stock allocated to works orders. There are facilities within the standard stock enquiries that allow allocations to be viewed by order type.

If present, sub-assembly works orders associated with the works order being allocated, can be allocated at the same time.

**Picking List** This optional stage in the cycle prints details of components to be picked. For each works order line printed, the report shows:

- Required Qty. The quantity of component stock required for the current works order line.
- Available Stock. The details of the free stock available for the current component.
- For batch tracked products, you can either list the details of all available batches, along with the notional quantities allocated from each batch to the works order line, or you can just list the specific batches that have been notionally allocated.
- For serialised products, you can either list all available serial numbers with those notionally allocated to the works order line identified, or you can just list the serial numbers that have been notionally allocated.
- Allocated Stock. The quantity of the component that is currently notionally allocated.

Works orders to be considered for the picking list can be selected according to the following criteria.

- Works order number
- Finished goods location
- Manufactured product

If present, sub-assembly works orders associated with the works order being printed, can be printed at the same time.

**Works Order Print** Print formal works order documents. This lets you:

- Print new works orders
- Reprint existing documents

Works orders to be considered for printing can be selected according to the following criteria.

- Works order number
- Finished goods location
- Manufactured product

|                |                       |  |         |
|----------------|-----------------------|--|---------|
| <b>Author</b>  | David Featley         |  |         |
| <b>Project</b> | Manufacturer Overview |  |         |
| <b>Version</b> | 3                     |  | 5 of 13 |

- Picking list number
- Sales order number

The works order document prints a list of selected works orders and shows.

- Order details.
- Order comments.
- Required components.
- Batch and/or serial number allocation.
- Line comments.
- QC Details (if selected).

If present, sub-assembly works orders associated with the works order being printed, can also be printed at the same time.

**Issue Components to Works Order**

This stage of the order processing cycle is used to confirm the issue of the component stock that will be used to manufacture the finished stock.

Works orders to be confirmed can be selected by:

- Works order number
- Finished product
- Location
- Picking list number
- Sales order number

For a selected works order the operator can:

- Confirm all remaining lines
- Confirm individual lines
- Part issues a line
- Change batch or serial allocation of line
- Over issue components to a line

Confirming a works order line:

- Issues component stock
- Establishes component cost values
- Updates serial number details with works order details

If present, components on sub-assembly works orders associated with the works order being issued, can be issued at the same time.

**Return Components to Stock**

This function allows unused components to be returned into stock from lines of issued components.

Works orders that require components to be returned to stock can be selected by:

|                |                       |  |         |
|----------------|-----------------------|--|---------|
| <b>Author</b>  | David Featley         |  |         |
| <b>Project</b> | Manufacturer Overview |  |         |
| <b>Version</b> | 3                     |  | 6 of 13 |

- Works order number
- Finished product
- Location
- Picking list number

For a selected works order the operator can:

- Select a line of issued components
- Return any quantity up to the issued amount into stock
- Optionally reduce the required quantity of the component on the works order by the quantity returned

Batch tracked components returned to stock are returned to the batches from which they were issued at the cost at which they were issued.

Non-batch tracked components are returned at:

- Standard cost if standard costing is in use,
- Average cost if average costing is in use,
- The appropriate proportion of the original cost of issue if FIFO costing is in use.

### **Complete Works Order**

This function completes the works order processing cycle.

The completion process:

- Establishes cost of finished product
- Prompt for a cost of any service and extra lines (if enabled), allowing for the entry of variable labour costs etc on a per works order basis.
- Allows user override of final cost if option enabled
- Receipts finished goods into stock
- Allows phased completion

Multiple orders can be listed for completion in a single run.

Orders can be selected for completion by:

- Works order number
- Finished product
- Finished goods location
- Picking list

### **Purge Orders**

Completed works orders remain in the system until purged. System parameters exist to configure how long completed works orders should be retained before becoming eligible for purging.

## **Stock Accounting**

|                |                       |  |         |
|----------------|-----------------------|--|---------|
| <b>Author</b>  | David Featley         |  |         |
| <b>Project</b> | Manufacturer Overview |  |         |
| <b>Version</b> | 3                     |  | 7 of 13 |

There are a number of General Ledger accounts used by Manufacturer. Postings are only made to these accounts if costs are being posted to General Ledger.

Transactions in Manufacturer post automatically to these accounts if the option to post costs to General Ledger is selected.

There are three accounts set up, one in product group maintenance and two in Manufacturer Parameter Maintenance, each of which can be modified. These are:

- **Stock Value.** This is the balance sheet account representing the total value of stock for the product group at the location. When finished good are completed the values of the finished goods are posted here.
- **Work in-progress.** This is posted by component issue when components are issued and again as finished goods are completed, and represents the value of component stock currently being used in the manufacturing process.
- **Cost Variance.** This is posted to by works order completion when the cost of the finished items differs from the cost of the components used.
- **Non-stocked goods issue.** This is posted to by works order completion. It holds the confirmed costs of all non-stocked, service and extra products used in the manufacturing process.

| <b>Manufacturer Transactions Actual Costing</b> |  |
|---|--|
| <b>Transaction Type</b>                         | <b>Posting details</b>   |
| Component Issue                                 | CR Stock Value<br>DR Work in progress  |
| Complete Order                                  | CR Work in progress with component value<br>CR Non-stock issue with cost of any non-stocked values<br>CR Cost variance any user specified cost adjustment<br>DR Stock value of finished with total of (components + non-stock + user cost adjustment). |
| Component Return                                | CR Work in progress<br>DR Stock Value  |

| <b>Manufacturer Transactions Standard Costing</b> |                                       |
|---|---------------------------------------|
| <b>Transaction Type</b>                           | <b>Posting details</b>                |
| Component Issue                                   | CR Stock Value<br>DR Work in progress |

|                |                       |         |
|----------------|-----------------------|---------|
| <b>Author</b>  | David Featley         |         |
| <b>Project</b> | Manufacturer Overview |         |
| <b>Version</b> | 3                     | 8 of 13 |

|                  |  |
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| Complete Order   | CR Work in progress with component value<br>CR Non-stock issue with cost of any non-stocked values<br>DR Stock value of finished with total of (standard cost + user cost adjustment)<br>CR Cost variance the difference which will include any user entered cost adjustment |
| Component Return | CR Work in progress<br>DR Stock Value  |

## Examples

### Actual Costing

1. Components only

CR to WIP of total component cost.

DR to Stock Value of finished goods (component cost).

2. Components + Non-stocked

CR to WIP of total component cost.

CR to Non-stock goods issue.

DR to Stock Value of finished goods (component + non-stock cost).

3. Components + Non-stocked + User entered cost adjustment

CR to WIP of total component cost.

CR to Non stock issues of non-stock total.

CR to Cost Variance of User entered cost adjustment.

DR to Stock Value of finished goods (component + non-stock cost + User entered).

### Standard Costing

4. Components only

CR to WIP of total component cost.

DR to Stock Value of finished goods (standard cost).

CR Cost variance with any difference.

5. Components + Non-stocked

CR to WIP of total component cost.

CR to Non-stock issues of non-stock total.

DR to Stock Value of finished goods (standard cost).

CR Difference finished goods - (components + non-stock) to cost variance.

6. Components + Non-stocked + User entered cost adjustment

CR to WIP of total component cost.

CR to Non stock issues of non-stock total.

DR to Stock Value of finished goods (standard cost + User entered).

CR to Cost Variance the difference which will include any user entered cost adjustment.

|                |                       |  |         |
|----------------|-----------------------|--|---------|
| <b>Author</b>  | David Featley         |  |         |
| <b>Project</b> | Manufacturer Overview |  |         |
| <b>Version</b> | 3                     |  | 9 of 13 |

## Reports

**Trial Kitting** This report looks at material availability and requirements for manufacturing any number of a selected finished product.

The parts explosion can either be printed as a report or as an on-screen based enquiry.

The results show:

- Required components
- QC stages
- Component shortages

Component requirements can be checked against either free stock or book stock.

Where a component shortage is found, the details of all expected purchase orders and (in the case of a sub-assembly) expected works orders are shown.

If an enquiry has been produced to display the parts explosion, the user has the option of then raising a works order for the details shown.

**WIP Valuation Report** This report prints details of works orders currently in production. Specifically, it reports on orders with an outstanding completion quantity for which goods have been issued.

The range of works orders to be printed can be selected by:

- Works order number
- Finished product
- Finished goods location

The report can be sequenced by:

- Works order number
- Finished product

Details printed on the report can be broken down by product type (stocked product, non-stocked product, service and extra) and include:

- Cost of materials issued
- Cost of materials completed
- Cost of materials in progress

**Works Order Report** This report prints details of works orders.

The following reports are available:

- All orders
- New orders
- Outstanding allocations
- Outstanding issues

|                |                       |  |          |
|----------------|-----------------------|--|----------|
| <b>Author</b>  | David Featley         |  |          |
| <b>Project</b> | Manufacturer Overview |  |          |
| <b>Version</b> | 3                     |  | 10 of 13 |

- Outstanding completions

The range of works orders to be printed can be selected by:

- Works order number
- Finished product
- Finished goods location
- Status

The report can be sequenced by:

- Works order number
- Component

Details printed on the report include:

- Works order quantities
- Allocation details
- Issued stock details
- Component shortages

If present, sub-assembly works orders associated with the works order being printed, can be printed at the same time.

#### **Print Bill Details**

This report prints the standard assembly bill details for one or more finished products.

Details printed on the report include:

- Component lines
- Comment lines
- QC lines

## **Enquiries**

#### **Works Order Enquiries**

A number of enquiries are provided. Lists of works orders can be viewed in the following sequences.

- **By Works Order Number.** Lists works orders in works order number sequence, with the oldest order appearing first.
- **By Product.** Lists works orders for a selected product.
- **By Date.** Lists works order in order of the date they were entered.

The range of works orders shown in the selected list can be restricted to any combination of the following.

- **New.** Orders that have been entered but are yet to appear on a works order picking list.
- **Part Allocated.** Orders that have been part-allocated.
- **Fully allocated.** Orders that have been fully allocated.

|                |                       |  |          |
|----------------|-----------------------|--|----------|
| <b>Author</b>  | David Featley         |  |          |
| <b>Project</b> | Manufacturer Overview |  |          |
| <b>Version</b> | 3                     |  | 11 of 13 |

- **Part Issued.** Orders that have been part issued.
- **Fully Issued.** Orders that have been fully issued.
- **Part Completed.** Orders that have been partially completed.
- **Completed Orders.** Order that have been completed.

Selecting a works order within enquiries lets you enquire on the current status of the works order lines.

**Drill down** For a selected works order, you can drill down to view the finished goods that have been completed. This includes receipts quantities, cost and full batch and serial details for batched or serialised products.

For a selected line of a works order you can drill down to view the actual components issued including cost and batch and serial details for batched or serialised components.

**Allocation enquiry** An allocation enquiry allows you to view details of sales order or works order lines that contain a quantity of allocated stock for a selected product.

**Where used** The where used enquiry allows you to enquire upon which, if any, assembly bills a selected component appears in.

**Sub-assembly works orders** This allows you to enquire on sub-assembly works orders that have been raised to resolve a shortage of assembly components on a line of a finished goods works order.

## QC Processing

**QC lines** If QC stages are enabled, Manufacturer allows any number of QC lines to be added to an assembly bill or works order. QC stages can optionally be printed on standard manufacturer reports and displayed when viewing works order lines and via the standard enquiry facilities.

**QC Processing** A QC stage can be selected for processing and given one of the following status values:

- Not Started
- In-Progress
- Completed

A QC stage can consist of:

- Short description.
- Three lines of free format narrative.
- Operator details.
- Stage completion date and time.
- Extensive free format notes for recording QC instructions and/or results.

**QC Report** The QC report allows works orders to be printed using QC status as one of the selection criteria.

**QC Report by operator** Prints QC stages sequenced by operator-id allowing to-do lists to be printed for selected operators.

|                |                       |          |
|----------------|-----------------------|----------|
| <b>Author</b>  | David Featley         |          |
| <b>Project</b> | Manufacturer Overview |          |
| <b>Version</b> | 3                     | 12 of 13 |

**Order Processing** For each order processing function you can define whether QC lines are to be displayed or suppressed when viewing order line details.

**Order Reporting** For each report in manufacturer, you can define whether QC lines and details are to be printed along with the works order lines, or suppressed from the report.

## SOP Integration

**Sales Order Entry** Manufacturer has an option to allow works orders to be generated from sales order entry in Global 3000 SOP.

If enabled, then the entry of a sales order line for a finished product that has insufficient stock for the quantity entered allows a user to raise a works order to be raised for the balance.

A works order raised against a sales order line can either be processed through Manufacturer in the standard way or directly via amending the relevant sales order line. This means that from Sales Order Entry, you can raise a works order, allocate it, pick it, issue the components and complete it if required.

When a works order is completed that belongs to a sales order line, the completed stock is allocated to the sales order line, with any additional stock manufactured, or no longer required by the sales order line being received into free stock.

|                |                       |          |
|----------------|-----------------------|----------|
| <b>Author</b>  | David Featley         |          |
| <b>Project</b> | Manufacturer Overview |          |
| <b>Version</b> | 3                     | 13 of 13 |