



Product Costing & Estimating

This module is the corner stone for all other Force4 Manufacturing modules. It provides effective administration of Bills of Material and routing structures to enable standard costing and work in progress valuation.

The information entered is sectioned as follows:-

Weights and Technical Details Tooling Details by Tool Part

Raw Material Details Production Routing (operation bases and rates)

- **Cost Summary.** An on-screen cost summary is available, at any time, showing the cost build-up to a total manufacturing cost, administration and other costs, selling price and profit. Profit margins and percentages are available at manufacturing and delivery levels. Profitability reports are available by Product and/or Customer range.
- **Optional Quotations**
- **'Gated' Levels.** Any process on the production route may be designated a 'gated' level. This enables the recording and valuation of W.I.P. stock and scrap at each of these operations.
- **Bill of Materials.** Allows the inclusion of predefined cost code details, a multilevel structure for the inclusion of bought out stock items and other production parts. Other non-standard costs may also be included. Free text may be added to further define each operation. The basis in terms of calculating standard operation costs may be selected from a range of hourly, each and weight bases.
- **Raw Material Price Build-up.** The material price may be entered through a price build-up per element or alternatively, for speed, a single price per tonne may be used.
- **Tooling Costs.** Includes the calculation of Die Inclusion and Part Cost Dies and Tools.
- **'What If' Calculations and Global Recalculation.** The effect of quantity, weight and other changes are reflected immediately in the on-screen summary. Changes in cost code rates will automatically adjust costs and estimates through the global recalculation routine.
- **Cross Reference Enquiries.** Comprehensive enquiries are available to access internal product codes by Customer Drawing Number, Enquiry Reference and Material Specification to name a few.



Sales Order Processing

The Force4 Sales Order Processing module controls the input and maintenance of Customer orders.

The module controls fixed and scheduled orders for production items and 'spot', non-production orders. Advice Notes may be generated on entry of despatch details.

This module interfaces with Product Costing for product validation and Production Control for stock information.

Despatch and Return details are transferred to the Invoicing module for automatic Invoice and Credit Note creation.

Once entered, orders/schedules may be amended and updated as required. As despatches and returns are entered these schedules are automatically updated or downdated with stock balances adjusted accordingly.

- **Fixed and Schedule Orders.** The module caters for firm quantity and schedule/blanket orders. It is particularly suited to those businesses manufacturing and delivering products to meet specific customer requirements. Cumulative despatch details are maintained for the life of the order. Selling Price History is maintained for the life of the Product/Order.
- **Incremental Pricing.** Up to six non-agreed selling price changes may be controlled, pre and post despatch for the production of supplementary invoicing information.
- **Non Production Orders.** These orders may be despatched 'manually' or automatically at a given date or with a specific production order or at the time of order creation.
- **Customer Delivery Locations.** The customer details include provision for a Correspondence Address, Invoice Address and multiple Delivery Locations.
- **Order Acknowledgements.** Orders may be acknowledged, if required, and re-acknowledged for any or all subsequent changes.
- **Advice Note Production.** Amendment and deletion of Advice Notes is possible until details are requested to be transferred to the Invoicing module for the production of Invoices/Credit Notes.
- **Order Position Analysis.** For user definable date ranges the outstanding order position may be analysed by Quantity, Weight or Value and reported by various combinations of Customer, Product, Production Group, Sales Area, Market Sector, Plant Unit and other analysis codes.



Inventory Control (with optional Work in Progress)

This module maintains production and scrap information for Products, Internal Orders and Production Batches.

Production batches may be cast controlled, if required, and indicate the production quantity to make.

The module may be integrated with the Force4 Work in Progress module through all 'gated' levels of the production route or it may be operated as Finished Stock Control only.

The module also interfaces with Product Costing and Sales Order Processing for product validation and order maintenance. Where bought out parts are used within the Bill of Materials consumable stock details are automatically downdated as production is recorded.

Production stock is controlled by stock type :- **Free, Allocated, Quarantined, Strategic and Offsite.**

- **Batch Control.** Actual production (including scrap) is compared and displayed against proposed batch quantities. The module reports where production entered exceeds the batch quantity specified and for hourly based operations the standard time to complete each operation is displayed. Interface to the 'Rough Cut' Capacity Planning module is controlled at individual batch level.
- **Requirements Planning.** Production stocks are compared to outstanding sales order requirements for user definable date ranges to report :-
 1. **Production Requirement**
 2. **Raw Material Requirement**
 3. **Consumable Stock Requirement**
- **Stock Take Procedures.** Stock Take procedures are available, which may be performed alongside normal daily production recording.
- **Stock Transactions.** Production, Scrap, Receipt of Finished Stock, Adjustment, Stock Type Allocation change and Stock Transfer transactions may be recorded. In addition, despatch and return transactions from Sales Order Processing, Outwork Movement and Production Booking transactions are recorded automatically.
- **Production Route Cards.** Route Cards are a comprehensive standard document detailing all the information necessary to plan and monitor production. Additional works documentation is available which can be designed to satisfy our clients individualised stationery requirements.
- **Transaction Audit Trail and Reports.** A full trail of all transactions is available for specified production batches. All transactions recorded are available for reporting by date, week and period range. Scrap analyses are available by reason code.



Raw Material Control

The Force4 Raw Material module controls the usage of material for production by either product identity or material specification.

Cast number and internal cast code maintain full cast control for all transactions.

The module provides for spot and scheduled material orders. Once entered orders/schedules may be amended and updated as required. As material receipts are entered the order is automatically adjusted. The module allows for over-deliveries since there is no automatic order completion.

If material is stocked by product identity the module interfaces with Product Costing for product raw material build-up and standard material price.

A facility is available where by material must be released prior to its usage. Release Notifications may be produced, if required.

Comparisons are available for standard to actual chemical analysis for each material receipt.

- **Stock Enquiries.** Material interrogation may be by stockcode, location, cast, specification or size and section.
- **Material Allocation and Production Issues>Returns.** Stock may be allocated to customer account codes and thence to customers/production orders. Material may be issued to production batches thus enabling standard to actual comparisons to be made if Standard to Actual costing is in use.
- **Transaction History Enquiries.** All transactions may be interrogated by Purchase Order, Receipt No, Cast or Stockcode.
- **Aged Stock and Material Movement Summary.** An aged stock summary is available in weight and value format. A raw material movement summary is available by date and period in weight and value format. Current outstanding orders are also displayed.
- **Order Position Analysis.** For user definable date ranges the outstanding order position may be analysed for a range of selection criteria. Forward call-off schedules may be produced by Supplier Code.
- **Reporting.** Transaction and Stock Valuation reports are available by date or period range For example:- Material Awaiting Release, Receipts, Transfers, Issues and returns.

Stock Valuation may be against standard or actual prices. A full audit trail of material usage from receipt through to despatch is available by cast.



Production Booking

This module enables the recording of production, downtime and re-work for product route based operations both 'Gated' and Non Gated and other excess manufacturing operations. Dependent on the basis of the operation, bookings are recorded by time, weight or each.

The information recorded in this module may be made available to the Standard to Actual module for variance analysis.

The module also interfaces with Product Costing, Sales Order Processing and Inventory Control for product, order and batch validation. Where bought out parts are used within the Bill of Materials consumable stock details are automatically downdated as production is recorded.

- **Time Based Operations.** Production quantity and time are recorded by Clock Number, Production Batch, Route Operation and Machine Identity. The machine identity indicates where the operation is crewed or for a single operator. Where crewed, multiple clock numbers are requested. Optional setting time may also be recorded as well as downtime by reason. If production is booked for a 'Gated Level' stock levels are adjusted accordingly. If booking at the last 'Gated' operation, options exist to automatically move production into Despatch. The standard time is attached to the transaction for subsequent variance analysis.
- **Weight Based Operations.** Production quantity and weight is recorded by Production Batch, Route Operation and Machine Identity. If production is booked for a 'Gated Level' stock levels are adjusted accordingly. If booking at the last 'Gated' operation, options exist to automatically move production into Despatch. The standard weight, whether Net, Gross or Issue, is attached to the transaction for subsequent variance analysis.
- **Each Based Operations.** For each based operations, only production quantity is recorded by Machine and Production Batch. If production is booked for a 'Gated Level' stock levels are adjusted accordingly. If booking at the last 'Gated' operation, options exist to automatically move production into Despatch. The standard quantity is attached to the transaction for subsequent variance analysis.
- **Enquiries and Reports.** Analyses are available by Operation, Machine, Clock Number and Production Batch. Reports may be produced for Date, Production Week and Accounting Period ranges. Production and Re-Work are reported separately. All reports may be printed in summary or detailed format. Downtime analyses by machine and by reason are also available.



Purchasing and Consumable Stock Control

The Force4 Purchasing and Consumable Stock module controls stock levels and purchase orders.

The module allows purchase orders to be raised for stocked and non-stocked items. Once entered, purchase orders may be amended and updated as required.

Delivery Notes may be generated on entry of receipt details, Purchase Debit Notes may be generated on entry of return details. Deliveries and returns automatically adjust the outstanding order requirements. The module caters for overdeliveries since there is no automatic order completion.

The module interfaces to the Product Costing Bill of Material structure and Inventory Control/WIP Tracking to enable the downdating of stock items on entry of 'bought out' production information.

- **Stock and Non-Stock Orders.** Order numbers may be allocated without the necessity to enter order item details. Firm and Blanket orders may be raised. Extensive purchase order narrative is available.
- **Units of Purchase.** A unit of purchase to unit of stock conversion may exist for all stocked items, as defined by the user.
- **Discounting.** Multiple, multilevel discounting is available, globally, by supplier code, or for each individual order item.
- **Receipt Location.** For each order a different receipt location addresses may be specified.
- **Supplier Addresses.** The supplier details include provision for a Correspondence Address, Remittance Address and multiple order addresses.
- **Perpetual Inventory.** A perpetual inventory routine is available for on-going stock take procedures.
- **Stock Control.** For production items stores and line-side stock details may be maintained separately.
- **Stock Movement.** An historic stock movement enquiry is available by stock code.
- **Reporting.** A, comprehensive, list of reports are available including Stock Valuation, Items for Re-Order, Departmental Issues & Returns and Order commitment summaries by department, expense or supplier.



Capacity Planning

The Force4 Capacity Planning Module provides "rough cut" planning for the current workload, as per the scheduled items, for operations not yet performed.

Production batches are transferred into planning, as required, to match the frequency operated by the user. The product route will be presented as per the Bill of Materials but can be modified to suit the actual route. New operations can also be added.

The system is updated for actual WIP movements from the Production Booking Module each time the module is re-extracted i.e. daily, weekly etc. Whilst all operations contained in the Planning Route can be planned, the system will only be updated from WIP at "gated level" operations.

Weekly Basis File

Capacity is calculated in weeks, for all cost centres, using the cost rate basis. (Hours, tonnes etc.) This weekly controlled file allows auto generation of week information but also permits the user to modify capacity in any week for any cost centre. Holiday weeks (Global) or (Specific) are catered for.

Operations Planned

The user can select which operations are suitable for planning.

Updates

The system can be updated inline with user operations either daily or weekly or as required. New batches raised will be added to the plan unless excluded by the user from Production. Each update will reflect both new batches and update operations performed since the last update.

Recalculation

After each update the system requires to be recalculated to provide the new capacity data.

Week Updates

The system is automatically updated into the next week when run following the update of the Production Module.

Where operations planned for the previous week have not been completed, these will be moved on to reflect manufacture in the current week. If required the system will also reschedule all operations that follow.

Forge Operations

The system will schedule all Forging Operations separately and will show these via enquiry and reports.

Customer Status Reports

User selective customer reports can be produced directly from the system for all current work for a specific time period.

Analysis

Enquiries and Reports providing details by cost centre (operation) can be produced for selected weeks for the number of weeks forward required.



Standard to Actual Comparisons

This module enables the analysis, by Sales Order Item, of standard product cost information and actual production recorded information. Raw Material usage, re-work, excess manufacturing and excess non-manufacturing operations are also analysed. Variances are calculated in terms of quantity, operation bases (time & weight), cost and sales value.

This module is of most benefit if all production route operations are booked not only 'Gated Levels'.

Standard to Actual comparisons may not only be performed for completed orders but also information may be collected, as often as required, throughout the life of the order. All production batches for the selected order item are available for analysis at the same time.

The standard route is, at the time of extraction into this module, fixed. Any subsequent changes to the product route do not affect the standard to actual comparisons.

Valued variance reports are globally available by date, week and accounting period ranges for operations, machines and production batches. Actual raw material issues are also compared to standard for selected ranges.

Desc	Cost	G	Std Value	Act Value	Variance
RAW MATERIAL ELEMENT	RAWM		1.87	1.50	0.37
TOOLING	TOOL		0.13	0.13	
<hr/> Standard Route <hr/>					
SAWING	1010		0.13	0.05	0.08
2000 HAMMER GROUP	2020	A	0.58	0.60	-0.02
BLACK VIEW	2910		0.24	0.06	0.18
NORMALISE	3020	B	0.68	0.63	0.05
BRINELL	3510		0.01	0.25	-0.24
GRIND	4020	C	0.40	0.25	0.15
OUTWORK MACHINE	4090	D	0.50	0.50	
FINAL INSPECT	5010	F	0.39	0.18	0.21
PACK	6910		0.20	0.13	0.07
<hr/> Excess Operations <hr/>					
LINISH	4030			0.19	-0.19
<hr/> Rework Operations <hr/>					
NORMALISE	3020			0.68	-0.68
<hr/> TOTAL Mfg. Cost <hr/>					
			5.29	5.13	0.16
<hr/> NON Manufacturing <hr/>					
CARRIAGE	8100		0.05		0.05
<hr/> Excess NON Manufacturing <hr/>					
<hr/> Administration <hr/>					
ADMINISTRATION	8700		0.16	0.16	
SELLING	8701		0.11	0.11	
FINANCE	8702		0.05	0.05	
<hr/> TOTAL Cost <hr/>					
			5.66	5.45	0.21
<hr/> Selling Price 01/01/1998 <hr/>					
	9500		7.00	7.00	



Management Reporting

The Force4 Management Reporting module allows for both extraction of quantitative details from Force4 production and sales transactions and the entry of batched forecast quantities.

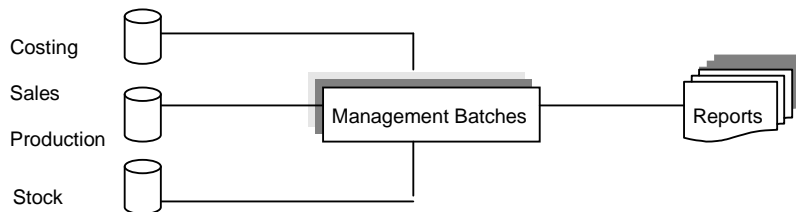
The quantitative details are then processed against Product Standard Costing information to produce a variety of reports for management control.

All information is extracted to unique batches, for each transaction type, by accounting period.

Once extracted, period batches may be reported singularly or similar batches may be merged to provide quarterly, biannual or annual reports as required.

Where required reports are available for both finished stock and work in progress “gated levels”.

- **Cost of Production**
The module reports Cost of Production by product or by individual product routing cost centre range.
- **Cost of Sales**
- **Cost of Production Scrap & Detailed Scrap Analyses**
- **Cost of Production Stock Adjustments**
Ad-hoc adjustments and Stock Take adjustments are reported separately.
- **Cost of Production Stock Transfers**
- **Production Stock Valuation**
Options exist to retrospectively perform a standard stock valuation as at a selected accounting period end.





Outwork Maintenance

The Outwork module enables the maintenance of outwork/sub contract orders for production items.

Supplier documentation in terms of Purchase Orders and Advice Notes are automatically produced on standard company stationery.

The module may be integrated with the Force4 Work in Progress module through all 'gated' levels of the production route or it may be operated as Finished Stock Control only.

The module also interfaces with Product Costing and Sales Order Processing for product and sales order validation.

Where the outwork process is 'Gated' as production is advised out to the sub contractor the stock type is automatically altered to offsite. When production is returned from outwork the stock is automatically moved ready for booking of the next 'Gated Level'. If the outwork operation is the last gate in the product route options exist to automatically moved stock ready for despatch.

If the module is operated in Finished Stock mode stock types are adjusted automatically but no gated movement takes place.

Outwork movement and balances are available by Supplier, Sales Order and Purchase Order.

During Production Stock Take all offsite stock is reported separately for ease of validation and reconciliation.



Maintenance

With simplicity of operation in mind, the Force4 Maintenance Module is designed for control of maintenance tasks and can be used for both planned and non-planned requirements. Indicators are available to denote that either planned maintenance or insurance checks are required or if the item is a portable electrical appliance.

- **Maintenance Records.** The system is maintained by machine reference, where the machines' related technical data can be stored. Against each machine, multiple sub-items can be recorded, each with their own requirements and their own detailed technical data. If further details is to be held, an in-built "text processor" is available which may contain an unlimited amount of free text. Help "windows" for machine/sub references are available throughout the system.
- **Task Recording.** Ad-hoc maintenance tasks are entered with a start date against the machine/sub reference. Planned maintenance job records can be produced automatically. Where necessary a job ticket may be printed. At the stage of completion further comments and times taken, can be recorded. For analysis, each task is recorded against a user defined reason code.
- **Planned Maintenance.** Machine/sub reference records may be designated as requiring planned maintenance. The user enters the task sequence required and sets the frequency of the checks. The system will then prompt the user when the task requires to be performed at the suggested time intervals. At the stage of completion the user will inform the system that the checks have been carried out.
- **Insurance Checks.** Machine/sub reference records may be designated as requiring insurance checks. The user sets the frequency of the checks required. The system will then prompt the user to suggest when pre-insurance checks require to be performed to ensure conformity prior to the actual insurance check. At the stage of completion the user will inform the system that the checks have been carried out.
- **Portable Electrical Items.** Machine/sub reference records may be designated as portable electrical appliances in order that the requirement for annual safety checks may be reported.
- **Enquiries and Reports.** In addition to historical data, enquires are available so the user may determine, by parameters, all tasks that require to be completed, all planned maintenance items outstanding and all insurance checks due. In addition to the provision of base reporting, parameter driven reporting allows the user to detail both historical and outstanding tasks, planned maintenance and insurance checks.



Test Certificates

The Force4 Test Certificate module can be operated as part of the fully integrated set of modules or as a totally stand-alone facility. It is designed to accept results for a wide variety of forging tests, comparing, if required, such results against previously defined parameter test sets. The facilities include many built in lookups and help to assist the user to operate the system with a minimum of effort.

Printing of the Test Certificate inclusive of the Material Specification and Chemical Analysis is a standard feature.

- **Types of Tests.** Testing for Mechanical, Magnetic Particle Inclusion, Ultrasonic and Dye Penetrant specification are all included as standard tests. Text is available to add any special tests and/or comments.
- **Test Parameter Sets.** The ability to enter multiple parameter test sets against specific material specifications for comparison (and pass/fail qualifications if required) to actual results.
- **Test Data.** A facility to enter multiple tests, by test type, against works orders or similar control numbers and compare results to selected parameter sets to identify pass/fail.
- **Test Certificate.** Entry of test data and chemical elements against base data controls allows the production of test results to be collated and printed onto a Test Certificate.

A facility allows for specific free format comments to be added as required. Certificates of Chemical Analysis can also be printed in isolation if required.

- **Works Orders (Control Number).** Control of base works order data features which include associated order number cross reference, testing material specification reference, material specification and steel cast number. A text processor is included.
- **Cast Comparison - Chemical Analysis.** Cast comparison requirements can be made to both internal material specification and to an actual material receipt for a specific cast. The Chemical Analysis is maintained within the system with 16 user defined chemical elements and 4 free format elements which can be added per order. A carbon equivalent calculation is also catered for.
- **Enquiries & Analysis.** In addition to the enquiries/reports provided with each section of the system, global enquiries etc. are available to provide further analysis in respect of the test data log.
- **Reduced Version.** A version of this module designed for companies who have the majority of their testing done by external contractors. Mechanical test results are entered as free format text and no comparison is done. This module uses Advice Notes as its information base for control information such as material used, cast numbers, customer information and quantities.