

**CAUTION !! All new procedures and processes should be checked in the 'Test' environment before being applied to the 'Live' business system.**

## **TOOLING PROCESS Ver 2**

### **1. INTRODUCTION**

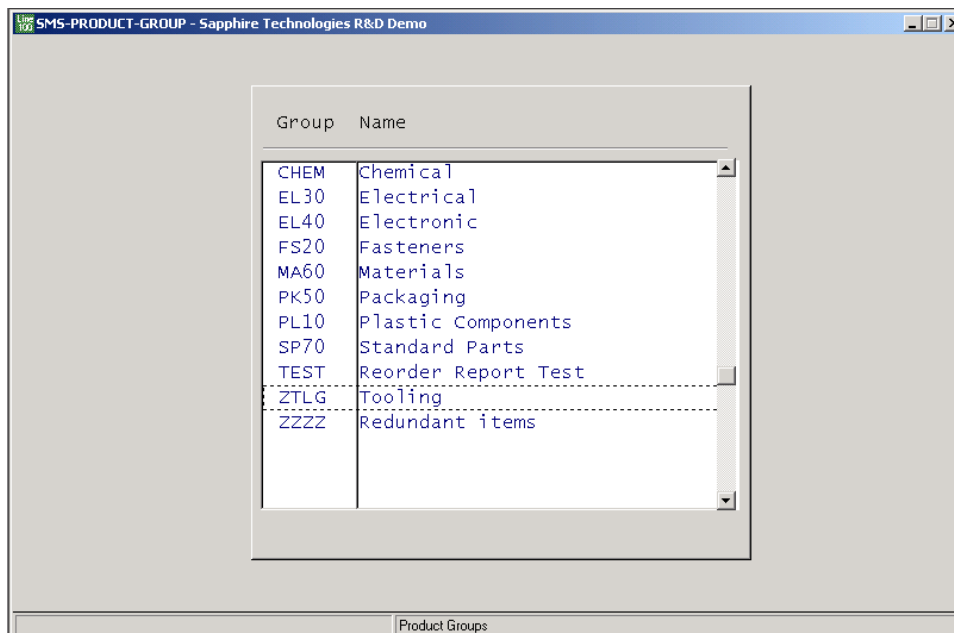
Manufacturers often need to control the tooling and fixtures associated with production processes as well as the main machines.

Within Sapphire the tooling can be controlled as a 'Stock Item' or as a 'Resource'. From Version 10 onwards a separate Tooling Register is available

### **2. TOOLING AS A STOCK ITEM**

#### 2.1 Product Group

The tool can be added as an item on the Stock file, assigned to a specific Tooling product group. There are advantages to making the tooling product group towards the end of the product group listing, so that it can be easily excluded within the 'first to last' filters that exist within many enquiries.



If there were a large number of tools to be controlled, it would be better to split these into several groups such as Press Forming Tools, Press Blanking Tools, Injection Moulding Tools, and Die Cutting Tools etc. All could be prefixed 'Z' to appear at the end of the listing.

## 2.2 Stock Item - Tool

The tool is added to the Bill of Materials, and can be linked to an operation within the Routing.

SMS-BOM-CREATE - Sapphire Technologies R&D Demo

Bill of Materials: CA1600    Batch Size: 1.0000    Level: 1  
 Description: Pump Unit (Enclosed) 800 LPM    UOM: Each  
 Build Path: CA1600 »

Seq	Item Number	Description	Total Qty
10	CA2700	Pump Assembly 3HP/800LPM	1.0000
20	CA2750	Control Panel	1.0000
21	T1000	Assembly Tool	1.0000

Qty: 1.0000 of Size: 1.0000    Total Qty: 1.0000000

Standard Bill of Materials    In stock: 0.0000  
 UOM: Each    Component Ref:    Bulk Item:    Unit Cost: 360.0000

Create BOM

SMS-BOM-CREATE - Sapphire Technologies R&D Demo

Component	Quantity	Linked To
CA2700	1.0000	
CA2750	1.0000	
T1000	1.0000	PR42

Amend Routing



## 2.3 Considerations

- All of the cost fields on the tool should be set to zero, as any cost shown here will be added to the BOM Costing (but see below – Tool Life)
- Generally set 'Include in MRP' to NO
- Set 'Item Type' to Purchased
- Set up a specific Depot for Tools
- Set 'Use Quantity In' to Each
- The 'Quantity in Stock' should be the number of tools available, normally one.
- If the item is set to 'Bulk Issue' (Bill of Materials, BOM Maintenance, Bulk Issue Parts) then it will not be necessary to issue the Tool, but it can appear on shop documents, depending on the parameter settings. Conversely, if the Tool is not Bulk Issue then it can be issued to a Works Order and returned on completion. Note that when a Works Order is raised and issued the quantity of tools required will be multiplied by the W/O quantity (but see Tooling Register later). This will enable the tool(s) to be tracked, by showing the Works Order to which it has been issued. If it is used on more than one product then it will be shown as 'out of stock' if a trial kit is made for another item using the same tool.
- A 'Where Used' enquiry within Bill of Materials will show all products that use the tool

## 2.4 Tool Life

The tool life can be monitored. This is useful for an Injection Moulding or Press Tool that has a known number of 'hits' before refurbishment is due.

- Set the 'Quantity in Stock' to the number of 'hits' available before refurbishment, for example 100,000
- Do not set the tool as 'Bulk Issue'
- When a Works Order is raised for say 20,000 components then this number of 'hits' will be issued from stock, leaving a balance of 80,000 before refurbishment
- The Reorder Level can be used to warn when a tool is approaching refurbishment. For example set the level to 20,000
- When there are no more 'hits' left in stock the tool can be refurbished and a stock adjustment made to reset the quantity available
- The cost of the tool can be amortised against the use. In the above example, if the tool cost £10,000 with an available number of 100,000 'hits' then the standard cost would be £0.10. If a Works Order is now raised for a quantity of 20,000 then this number of 'hits' will be removed from stock, and a cost of £2000 added to the works order.

### **BlueStone Solutions for Business**

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### 3. TOOLING AS A RESOURCE

3.1 A Resource Group should be set up for Tools. If there were a large number of tools to be controlled, it would be better to split these into several groups such as Press Forming Tools, Press Blanking Tools, Injection Moulding Tools, and Die Cutting Tools etc.

The individual tools are now added as Resources within the Groups.

The screenshot shows a software window titled "SMS-MACHINES - Sapphire Technologies R&D Demo". The window is divided into two main sections: "Resource Definition" and "Capacity Information".

**Resource Definition:**

Reference	TI000	Charge Rate	20.0000
Description	Injection Mould Tool	Set Up Time	1:00
Type	Machine	Finish Time	0:30
Group	TL10	Available Hrs/Period	

**Capacity Information:**

Period Type	Week	Maximum Hours Per Period	168
		Available Hours Per Period	70.00

At the bottom of the window, there is a button labeled "Resource Register".

### 3.2 Considerations

- The tool is added to the Routing against an operation
- Using the Set, Run, Finish Times and the Charge Rate the cost of using the tool can be added to the BOM Costing/Works Order. The cost cannot be calculated by number of 'hits'
- The use of the tool can be planned
- Tool Life cannot be calculated by number of 'hits'
- There is currently no 'Where Used' enquiry to determine on which products the tool is used

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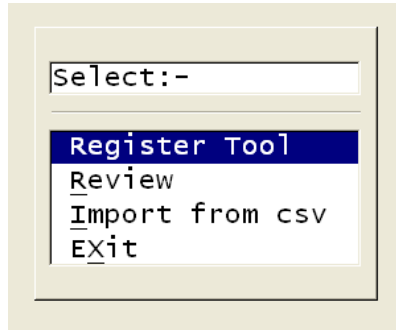
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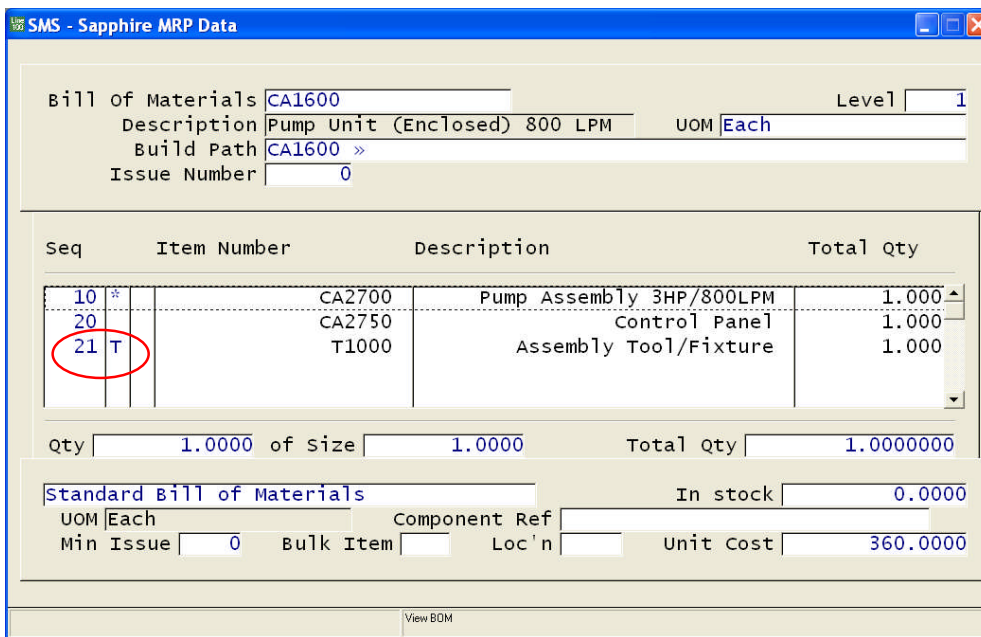
#### 4. TOOLING REGISTER (From Version 10 onwards)

Bill of Materials, BOM Maintenance, Tool Register

Under the above menus the following facilities are available



- Register - add an existing stock item to the Tool Register
- Review - display the existing registered tools
- Import - a list of tools held on a spreadsheet can be imported as a .csv file held under the reference c:\tool.csv. The file format is a single field for Item Number, which is 20 chars A/N. The Items must already exist on the Stock File.



When added to a BOM, the Tooling Register item will be shown with a 'T' flag. This means that when the Works Order is raised this item is NOT multiplied by the W/O quantity, so that only the Total Qty shown (normally 1) is issued regardless of the order quantity.