BEAS
MANUFACTURING

Beas Tutorials

boyumit

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Beas Manufacturing

Beas Manufacturing is the global solution for small to mid-sized discrete and process manufacturing businesses. Offering functionality from the planning phase through to control, implementation and fulfilment, Beas Manufacturing ensures efficiency and flexibility for manufactures.

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1 Analyze and execute pre-calculations

Product costing is a complex process used to value the internal cost of materials and production for profitability and management accounting. This tutorial gives and overview of product costing, its importance and practical uses in the business process.

Throughout a given period, actual expenses are recorded in SAP as purchases are made, payroll is processed, bills are paid, and production occurs. At month-end, Work in Process, Variance, and Settlement are calculated. The variance between actual costs and standard costs can result in changes to product costing for the next period or year. Costs are settled, and the posting period is closed at the end of the month.

Product cost planning is a concept where the business can plan costs for materials or finished goods, set prices for materials and other cost accounting objects without references to orders.

Analyzing product costs provides answers to questions such as:

- What is the added value of a particular step in the production process?
- What proportion of the added value can be attributed to a particular organization unit?
- What are the material, production, and overhead costs?
- How can production efficiency be improved?
- Can the product be sold at a competitive price?

Beas offers the Precalculation functionality where product cost is planned. This function simulates the planned cost based on the information from the item master data (BOM and routing). This function also allows to check the structure of an item based on its cost structure.

This tutorial explains how to run the Precalculation functionality, explains the main fields at the Precalculation screen used for product cost planning. It details the master data affecting the Precalculation results, to understand material and operational cost calculation results and set material pricing parameter to calculate material cost.

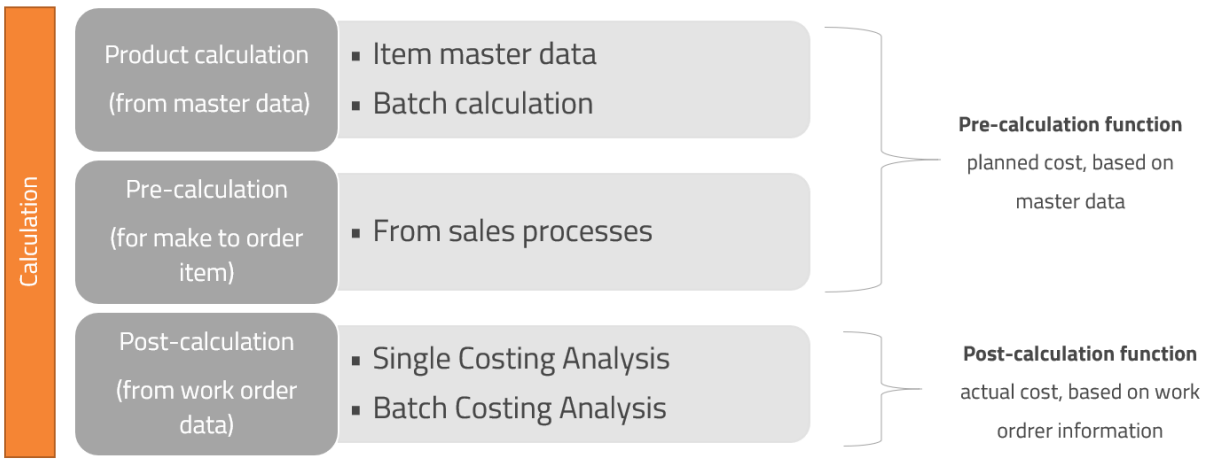
1.1 Process interactions

The Beas Precalculation function interacts with the following processes:

Process	Function
Engineering	Planned item cost
	Batch calculation
Production	Planned work order cost
Sales	Precalculation for sales order items

1.2 Process

In Beas, there are 3 cost calculation functionalities. Some of these estimates planned cost and others analyze actual costs.
Precalculation calculates planned cost and post-calculation calculates the actual cost of the item from a work order.



Pre-calculation gathers information from the item master data, material quantities required to produce from the bill of materials, and time required from the routing steps. An option allows to run the pre-calculation directly from the master data to view the planned cost of a produced item.

Post-calculation uses the information of the work order to calculate the actual cost. The system not only estimates the planned cost of the work order based on its BOM and routing defined, but also calculates the actual cost based on material consumption and time reporting.

The pre-calculation function might be used at a sales order to customize an *Order Related* item, or it can be run in bulk, using several items, to create an SAP price lists. This type of execution is performed by the *Batch Calculation* functionality. For more information, please refer to *Batch Calculation* tutorial.

While creating item structures, there is an option to run the pre-calculation functionality in the master data to review the cost of the item and to ensure that the structure is correct.

1.2.1 Assigning a Calculation Schema to an item

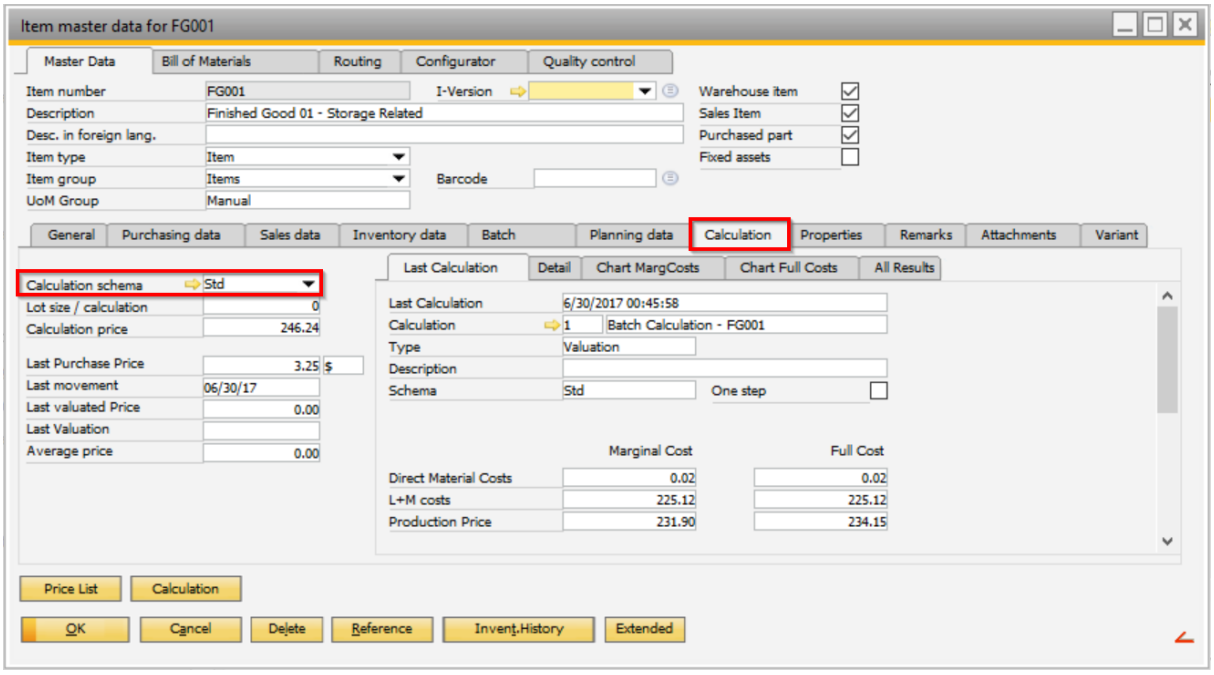
After some calculation schemas are defined in the database, they need to be assigned to the produced items. If an item has no assigned calculation schema assigned, Beas uses the default calculation schema defined in the Configuration Wizard.

The calculation schema can be assigned to an item in the item master data, the Calculation tab.

> Inventory > Item Structure > Double Click an item > Calculation tab

The item structure screen of Beas displays a list of all items created.

Link the required calculation schema in the Calculation schema field. The drop-down displays all defined calculation schemas to chose from.

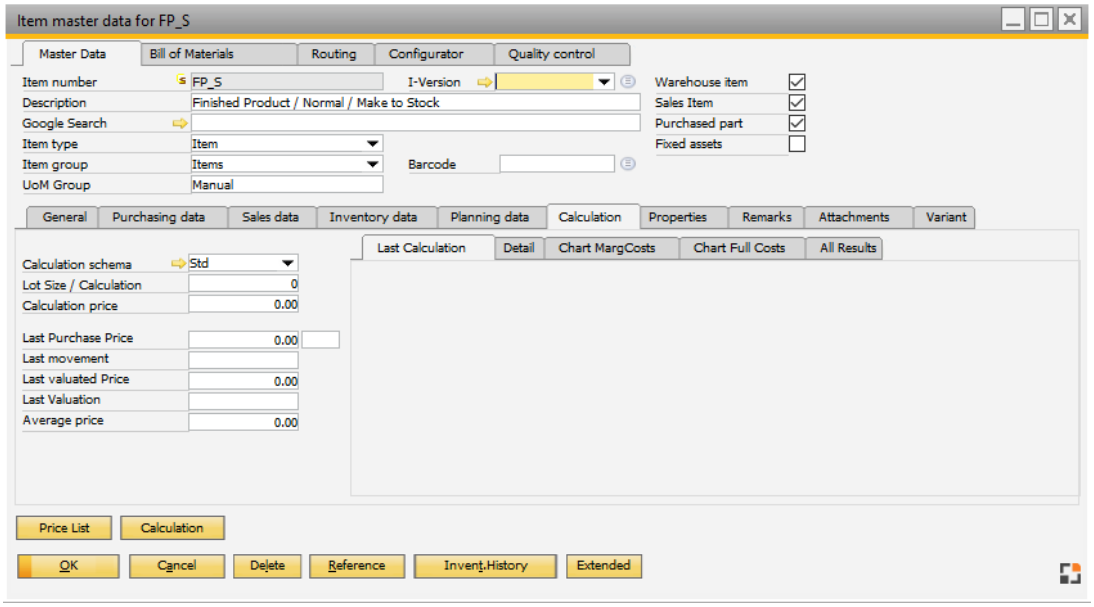


> IMPORTANT: This tab only appears when the mode of procurement is set to Produce. For more information about mode of procurement, refer to the Item Master Data tutorial.

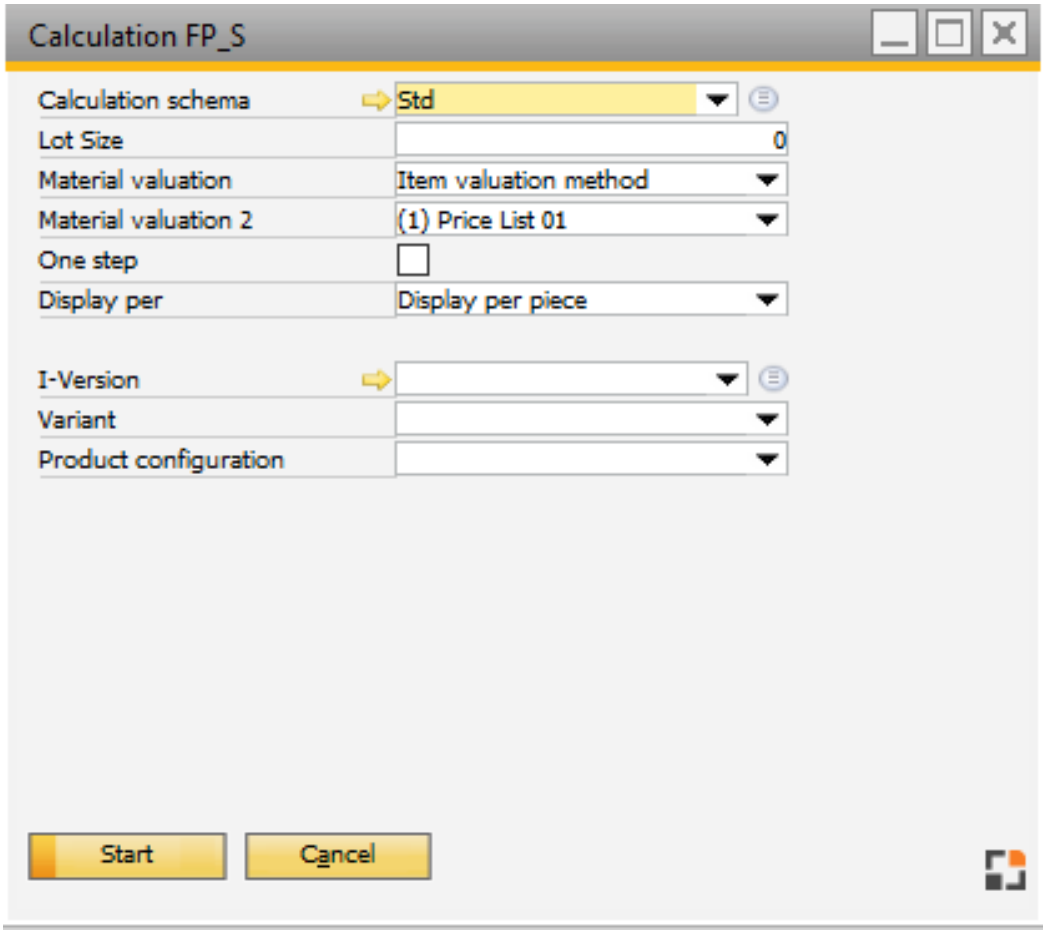
1.2.2 Executing a pre-calculation from the item master data

A pre-calculation can be run for a specific item from its item master data. This calculation only displays the results and cannot be saved.

1. Go to the item master data, Calculation tab.



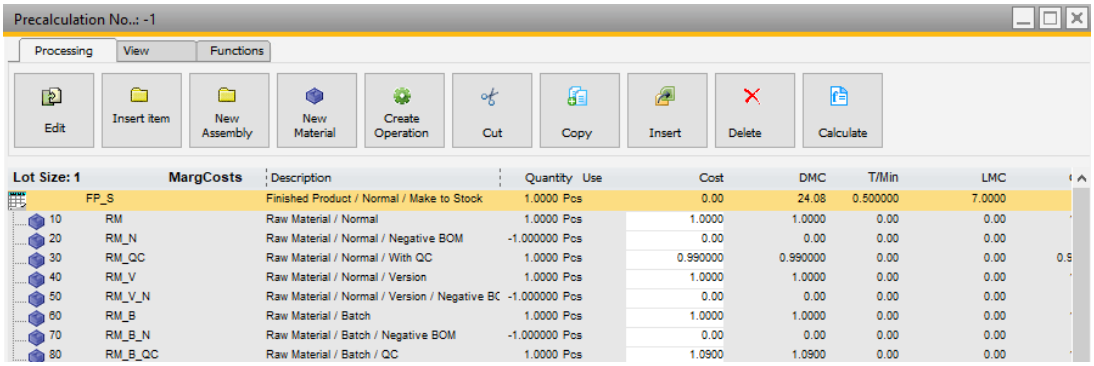
2. Link a calculation schema to the item, if it is not already done.
3. Click the **Calculation** button to open the attached calculation schema on the item.



4. Click **Start** to execute the calculation. For an explanation on the available fields, see

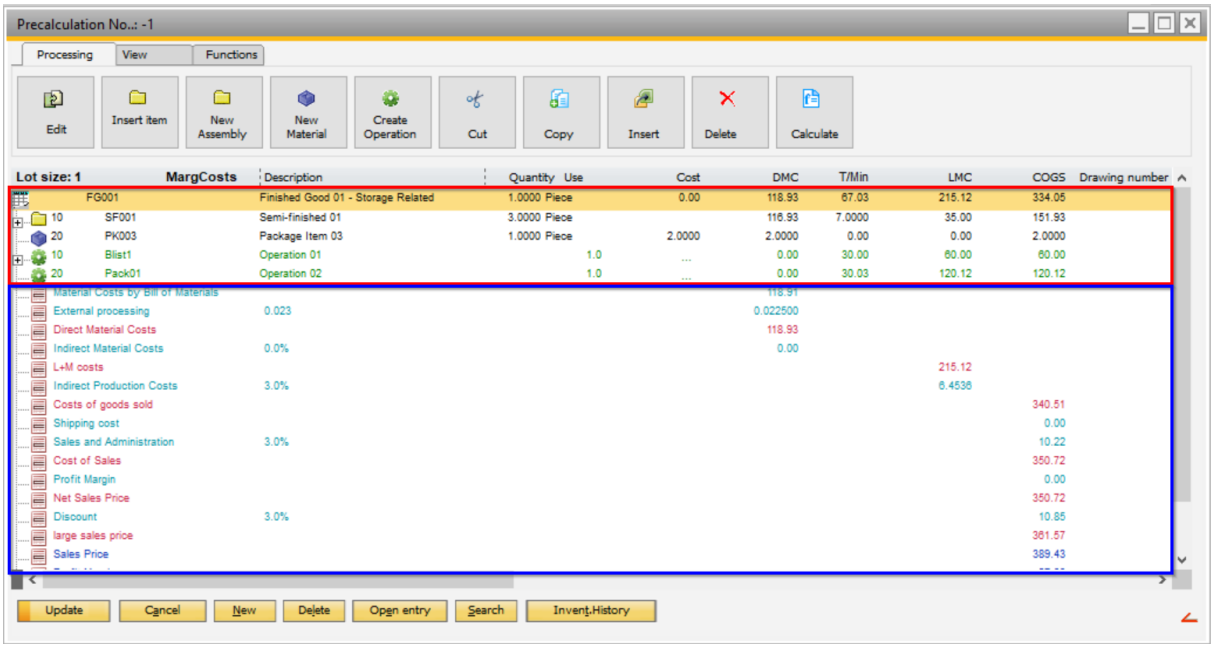
Calculation field guide in the Beas online help.

5. The result screen opens.



1.2.3 Analyzing a pre-calculation result

After the pre-calculation is executed, a new screen is opened. The results are displayed in the following structure:

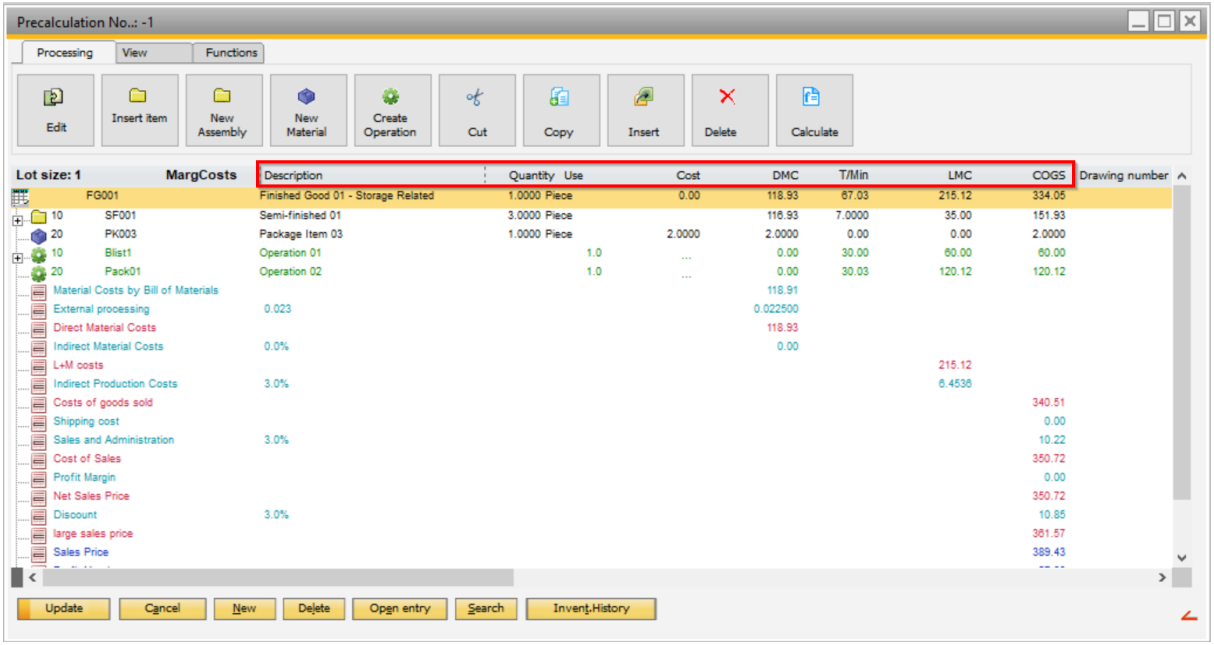


The item structure can be expanded in the upper side of the screen, marked in red.

The calculation schema objects are displayed at the bottom of the screen, marked in blue. These can be hidden by setting the *Hide calculation schema* parameter in the calculation schema setup. For more information about this setting, refer to the Calculation Schema tutorial.

The user can hide selected objects from the calculation schema in the pre-calculation screen. For more information about this, refer to the *Default* field in the *Overhead Cost* objects in the Calculation Schema tutorial.

The columns display the input and results of the calculation.



Description: The description of each item and routing from the item structure. This is used to display details of the surcharge from the calculation schema, like percentage or fixed value.

Quantity Use:

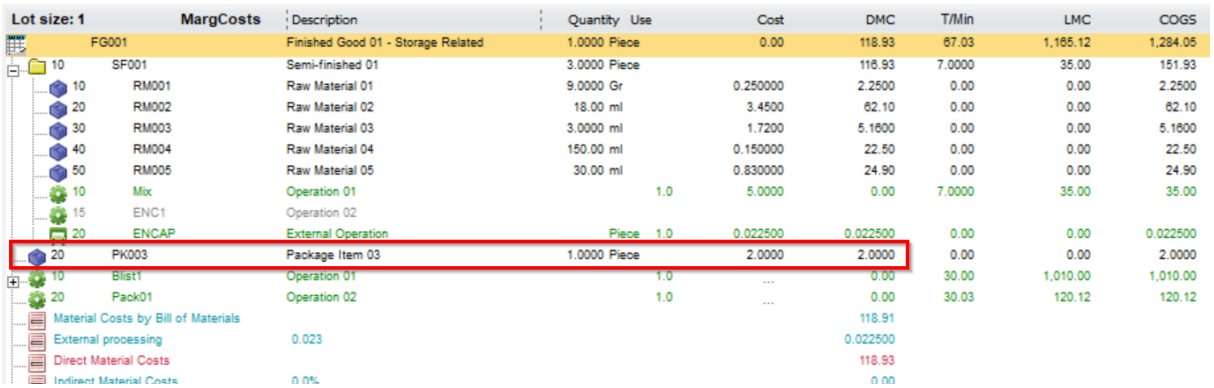
- For a bill of material positions (raw material and subassemblies): Quantity of the material required to produce
- For a finished good: Quantity to be produced
- For a routing position Time needed to perform the task from the routing

Quantities are summarized according to a specific unit of measure, which is defined in the Configuration Wizard.

Cost: The material price determined by Material Valuation or Material Valuation 2 defined for the pre-calculation execution.

DMC: Acronym for Direct Material Cost. The direct material cost per material (quantity * cost) in the item structure and, summarized in the Direct Material Costs calculation schema object and the finished good item (BOM material cost + external operation cost defined in the calculation schema). For more information about Calculation Schema, please refer to Calculation Schema tutorial.

> ***Example***: For the item FG001, there is a subassembly and a raw material as part of the bill of material. Beas calculates the DMC for each position which is the quantity * cost.
> For PK003 – Package Item 03 = 2€ * 1 piece = 2€



Lot size: 1	MargCosts	Description	Quantity	Use	Cost	DMC	T/Min	LMC	COGS
FG001		Finished Good 01 - Storage Related	1.0000 Piece		0.00	118.93	67.03	1,165.12	1,284.05
10 SF001		Semi-finished 01	3.0000 Piece			116.93	7.0000	35.00	151.93
10 RM001		Raw Material 01	9.0000 Gr		0.250000	2.2500	0.00	0.00	2.2500
20 RM002		Raw Material 02	18.00 ml		3.4500	62.10	0.00	0.00	62.10
30 RM003		Raw Material 03	3.0000 ml		1.7200	5.1600	0.00	0.00	5.1600
40 RM004		Raw Material 04	150.00 ml		0.150000	22.50	0.00	0.00	22.50
50 RM005		Raw Material 05	30.00 ml		0.830000	24.90	0.00	0.00	24.90
10 Mix		Operation 01		1.0	5.0000	0.00	7.0000	35.00	35.00
15 ENC1		Operation 02							
20 ENCAP		External Operation	Piece	1.0	0.022500	0.022500	0.00	0.00	0.022500
20 PK003		Package Item 03	1.0000 Piece		2.0000	2.0000	0.00	0.00	2.0000
10 Blist1		Operation 01		1.0	...	0.00	30.00	1,010.00	1,010.00
20 Pack01		Operation 02		1.0	...	0.00	30.03	120.12	120.12
Material Costs by Bill of Materials						118.91			
External processing		0.023				0.022500			
Direct Material Costs						118.93			
Indirect Material Costs		0.0%				0.00			

Beas calculates the DMC for the assembly SF001 by summing up all material costs and the external operation cost. This means: RM001 + RM002 + RM003 + RM004 + RM005 + ENCAP

DMC for SF001 = (9 * 0.25€) + (18 * 3.25€) + (3 * 1.72€) + (150 * 0.15€) + (20 * 0.83€) + (0.225€)

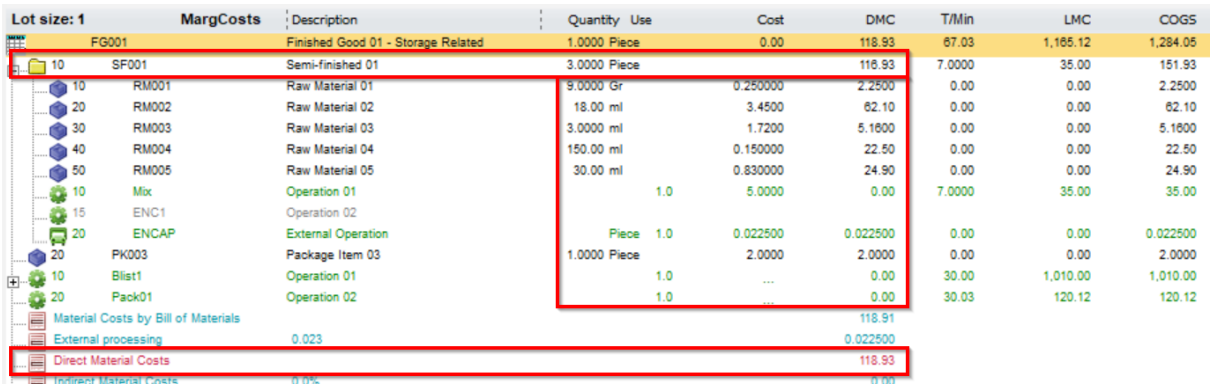
= 116.93€

Lot size: 1	MargCosts	Description	Quantity	Use	Cost	DMC	T/Min	LMC	COGS
FG001		Finished Good 01 - Storage Related	1.0000 Piece		0.00	118.93	67.03	1,165.12	1,284.05
10 SF001		Semi-finished 01	3.0000 Piece			116.93	7.0000	35.00	151.93
10 RM001		Raw Material 01	9.0000 Gr		0.250000	2.2500	0.00	0.00	2.2500
20 RM002		Raw Material 02	18.00 ml		3.4500	62.10	0.00	0.00	62.10
30 RM003		Raw Material 03	3.0000 ml		1.7200	5.1600	0.00	0.00	5.1600
40 RM004		Raw Material 04	150.00 ml		0.150000	22.50	0.00	0.00	22.50
50 RM005		Raw Material 05	30.00 ml		0.830000	24.90	0.00	0.00	24.90
10 Mix		Operation 01		1.0	5.0000	0.00	7.0000	35.00	35.00
15 ENC1		Operation 02							
20 ENCAP		External Operation	Piece	1.0	0.022500	0.022500	0.00	0.00	0.022500
20 PK003		Package Item 03	1.0000 Piece		2.0000	2.0000	0.00	0.00	2.0000
10 Blist1		Operation 01		1.0	...	0.00	30.00	1,010.00	1,010.00
20 Pack01		Operation 02		1.0	...	0.00	30.03	120.12	120.12
Material Costs by Bill of Materials						118.91			
External processing		0.023				0.022500			
Direct Material Costs						118.93			
Indirect Material Costs		0.0%				0.00			

Beas then calculates the DMC for the finished good FG001 by summing the rest of the bill of material. This means: SF001 + PK003

DMC for FG001 = 116.93€ + 2€

= 118.93€



Lot size: 1	MargCosts	Description	Quantity	Use	Cost	DMC	T/Min	LMC	COGS
FG001		Finished Good 01 - Storage Related	1.0000 Piece		0.00	118.93	67.03	1,165.12	1,284.05
10 SF001		Semi-finished 01	3.0000 Piece			116.93	7.0000	35.00	151.93
10 RM001		Raw Material 01	9.0000 Gr		0.250000	2.2500	0.00	0.00	2.2500
20 RM002		Raw Material 02	18.00 ml		3.4500	62.10	0.00	0.00	62.10
30 RM003		Raw Material 03	3.0000 ml		1.7200	5.1600	0.00	0.00	5.1600
40 RM004		Raw Material 04	150.00 ml		0.150000	22.50	0.00	0.00	22.50
50 RM005		Raw Material 05	30.00 ml		0.830000	24.90	0.00	0.00	24.90
10 Mix		Operation 01		1.0	5.0000	0.00	7.0000	35.00	35.00
15 ENC1		Operation 02							
20 ENCAP		External Operation	Piece	1.0	0.022500	0.022500	0.00	0.00	0.022500
20 PK003		Package Item 03	1.0000 Piece		2.0000	2.0000	0.00	0.00	2.0000
10 Blist1		Operation 01		1.0	...	0.00	30.00	1,010.00	1,010.00
20 Pack01		Operation 02		1.0	...	0.00	30.03	120.12	120.12
Material Costs by Bill of Materials						118.91			
External processing		0.023				0.022500			
Direct Material Costs						118.93			
Indirect Material Costs		0.0%				0.00			

T/Min: The operation time duration, including setup time and processing time.

Times are summarized according to a specific unit of measure. This is defined in the Configuration Wizard.

LMC: Acronym for Labor and Machine Cost. Operation cost per routing position (Time * resource cost rate) in the item structure and, summarized in the calculation schema object L + M Cost and the finished good item.

COGS: Acronym for Cost Of Goods Sold. The first draft of the product cost which includes DMC + LMC and additional surcharges related to materials and operations included in the calculation schema. For more information about Calculation Schema, please refer to Calculation Schema tutorial.

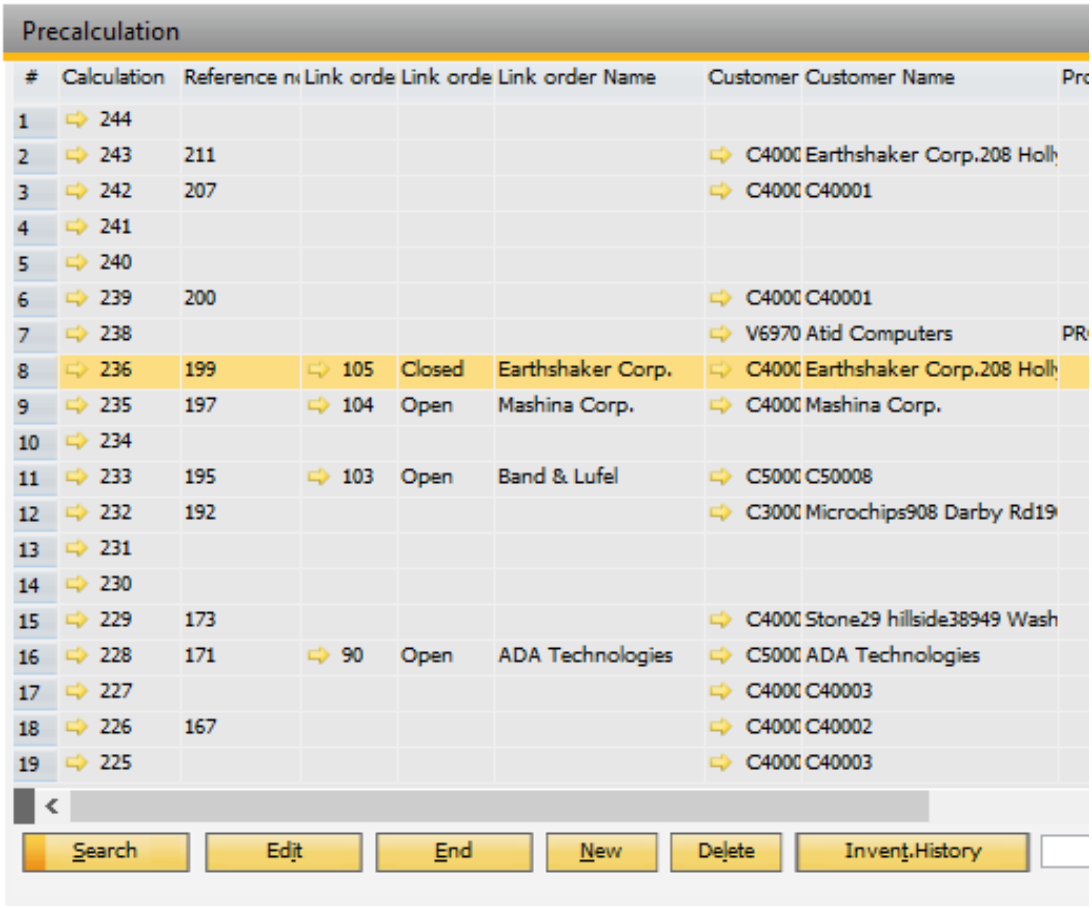
1.2.4 Creating and executing a pre-calculation from the Precalculation screen

Sales – A/R > Precalculation

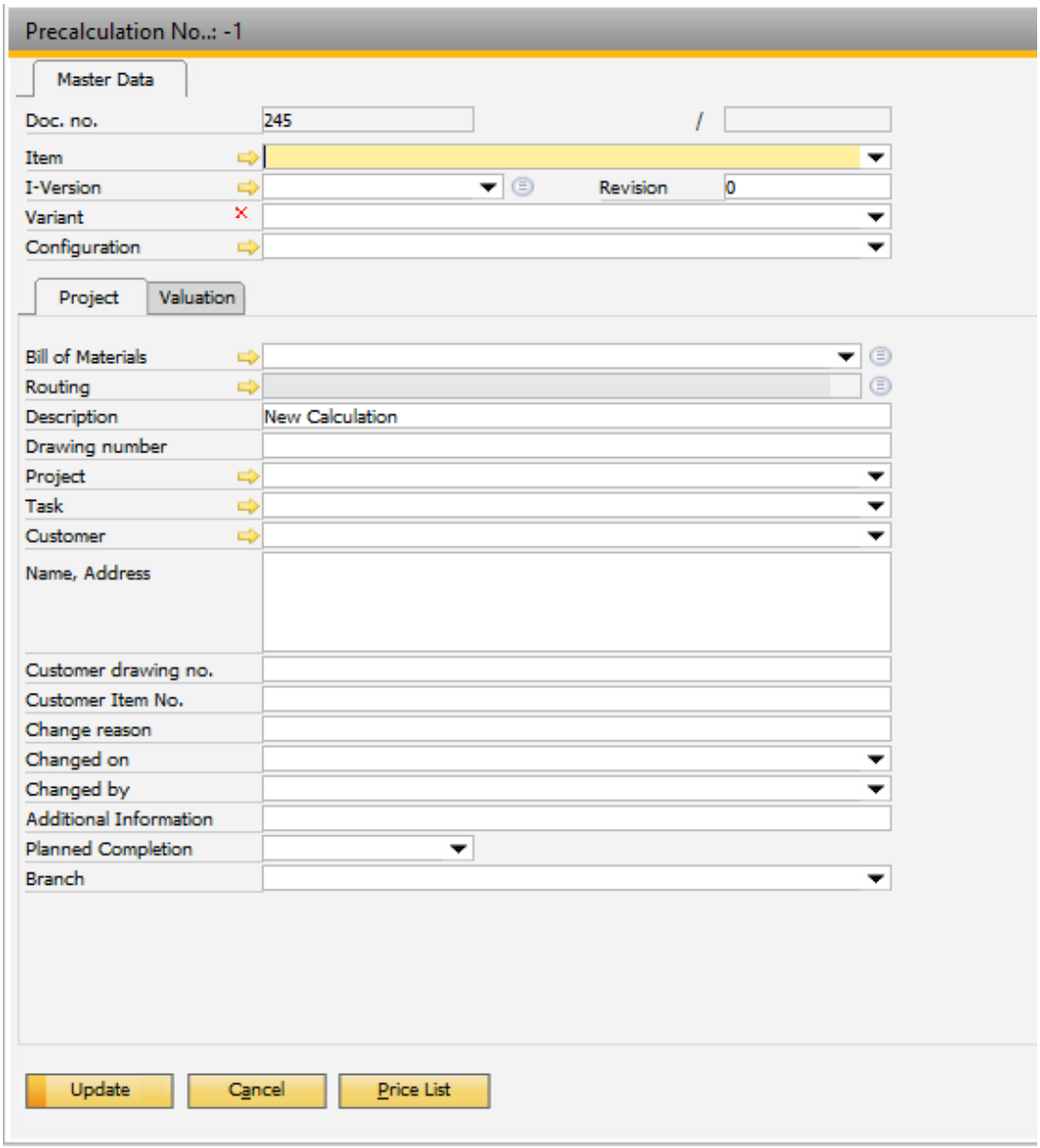
This screen lists all pre-calculations that are saved in the system. Any of them can be opened or edited or a new calculation can be created.

To create a new calculation:

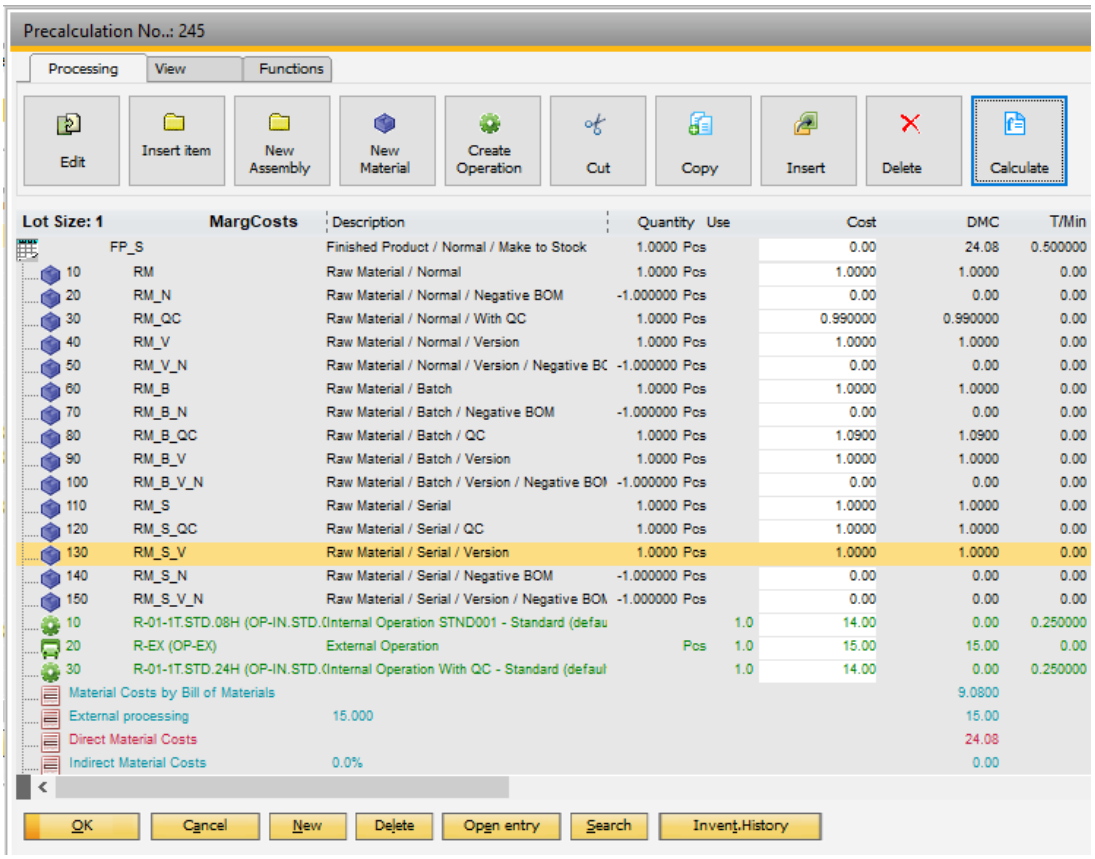
1. Click the **New** button.



2. Provide the calculation details. For an explanation on the available fields, see Pre-calculation field guide in the Beas online help.



3. Click the **Update** button to save the calculation under the document number provided in the Doc. no. field.
4. The pre-calculation result screen opens.



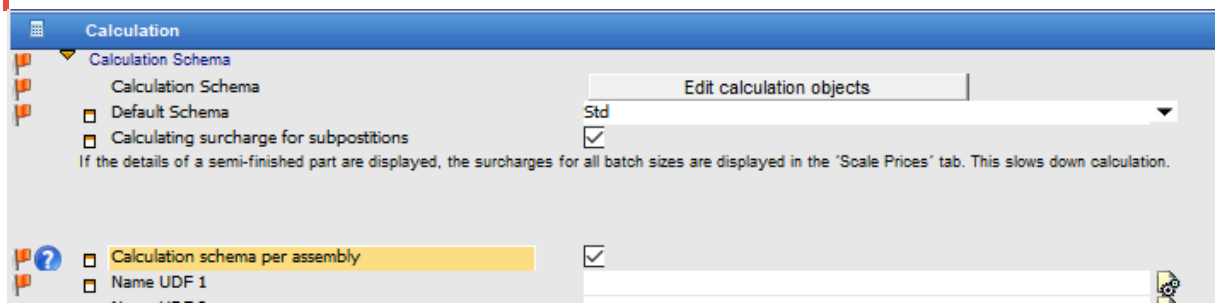
5. Click the **Update** button to save the calculation in the Precalculation list.

1.2.5 Configuring pre-calculation per assembly

Beas offers extensive functionality for cost calculation. This calculation configuration differentiates the way the calculation schemas are evaluated and displayed in the pre-calculation function.

1. Enable this functionality in the Configuration Wizard by marking the *Calculating surcharge for subpositions* and *Calculation schema per assembly* parameters.

Administration > System Initialization > Configuration Wizard > Calculation > Calculation Schema

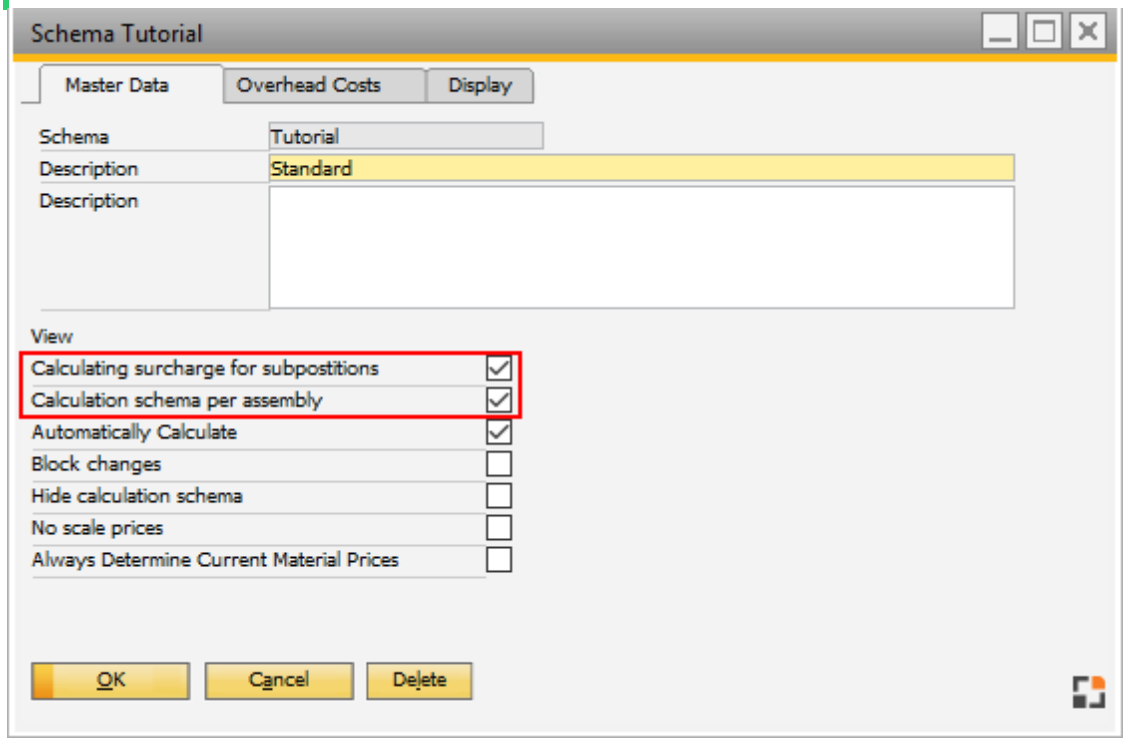


See Pre-calculation Configuration Wizard for details.

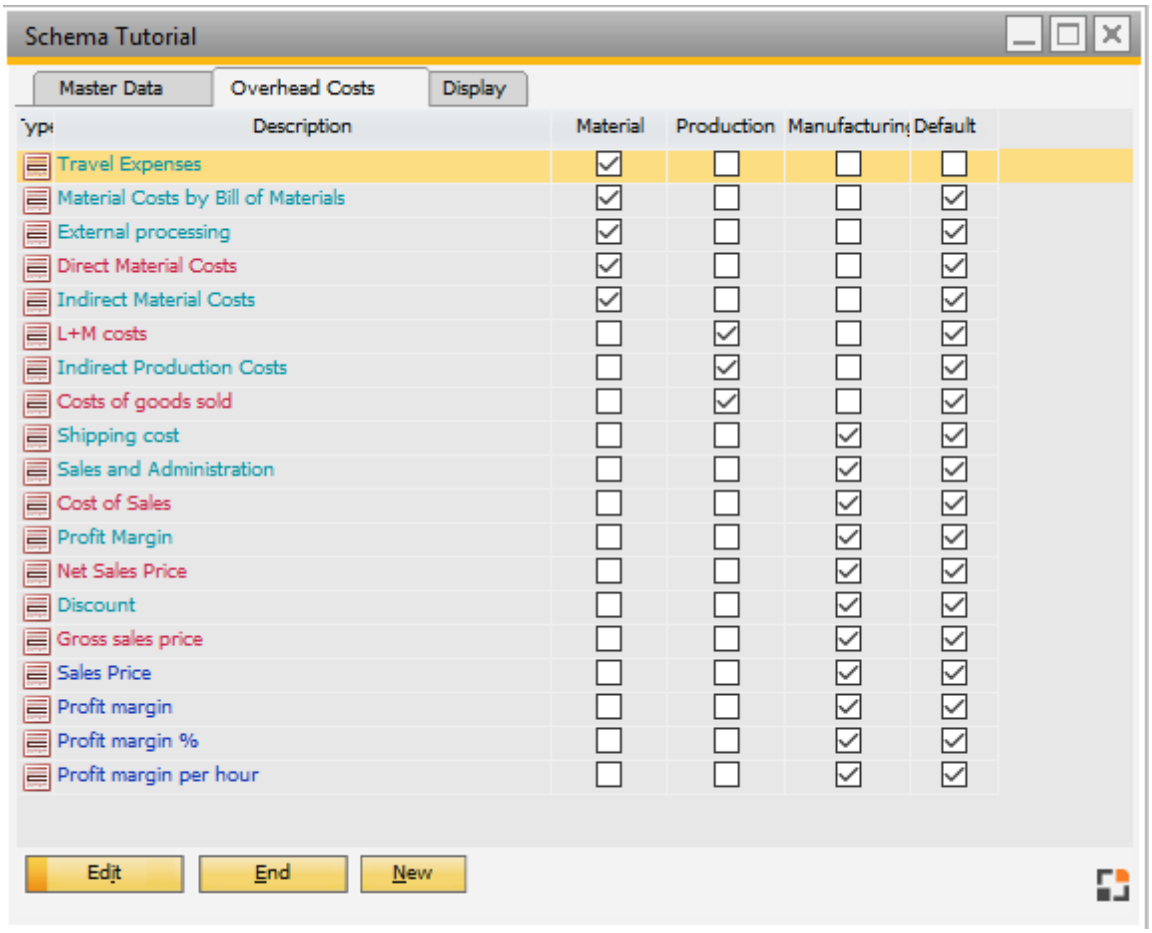
2. Enable the options in the calculation schema.

This makes the new Display tab available.

Administration > Setup > Precalculation > Calculation Schema

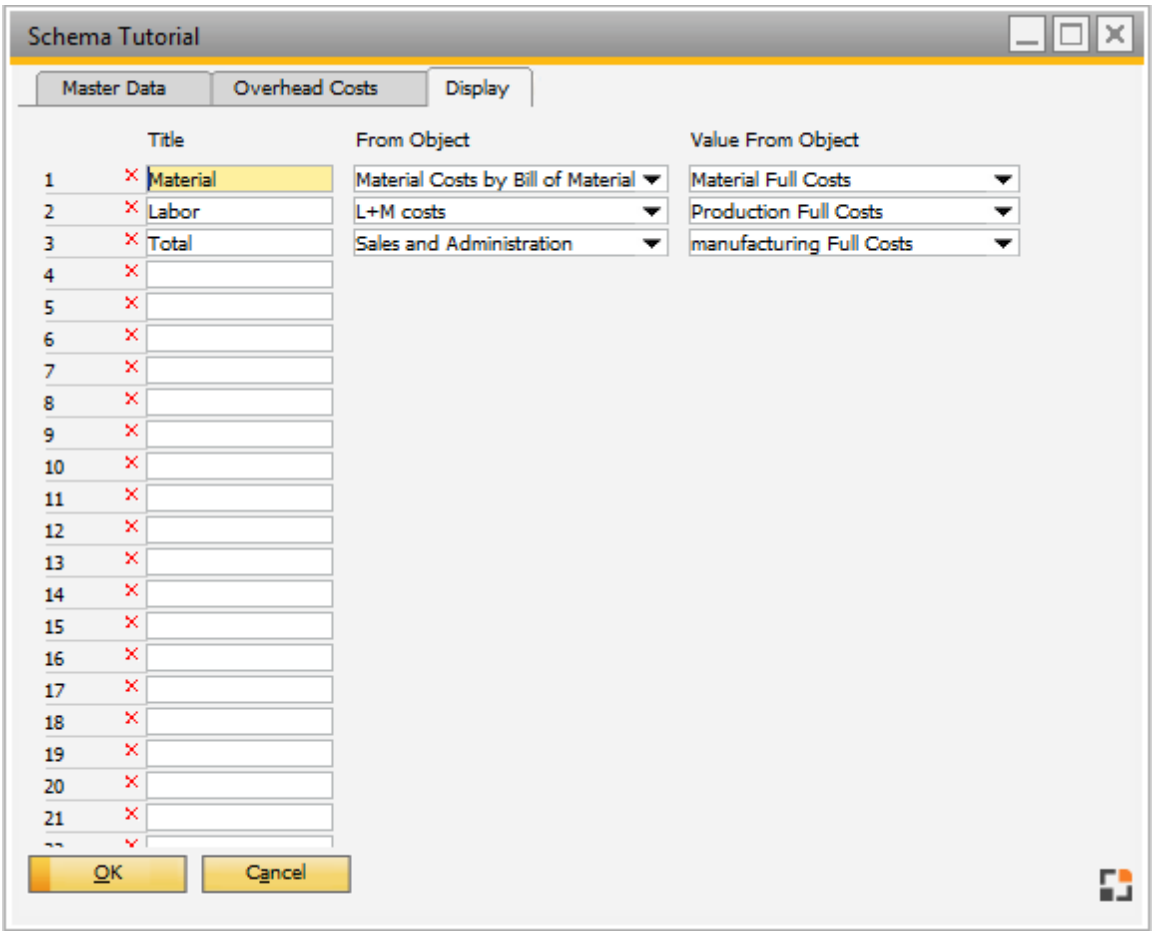


3. Define the cost elements and surcharges in the calculation schema.



4. In the Display tab the calculation elements can be assigned to be aggregated in a customized way.

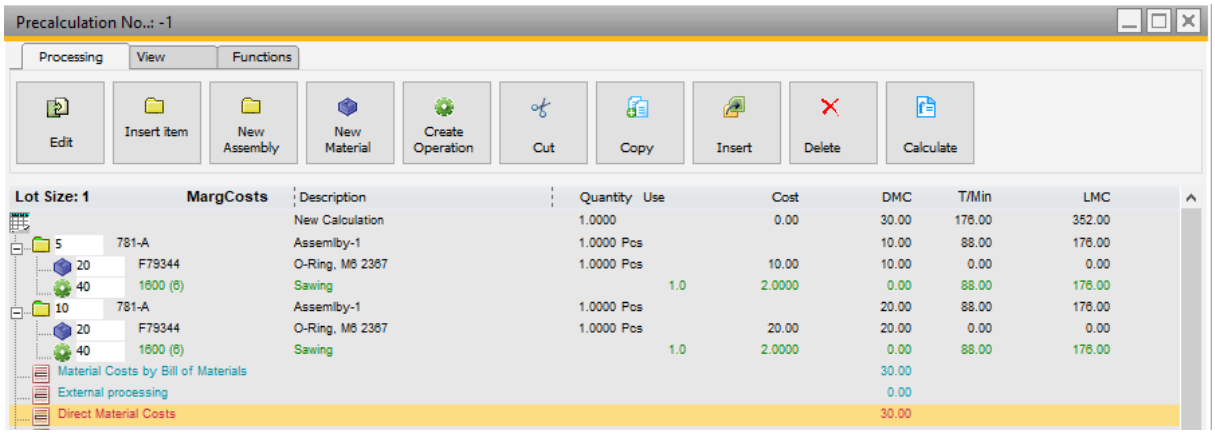
We use the values from the objects defined in the calculation schema.



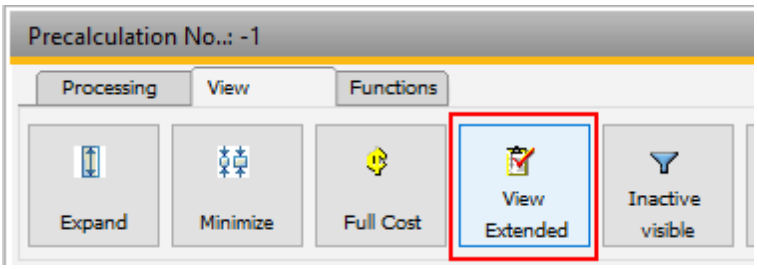
5. Create a new pre-calculation with the schema that was set up and add sub-assemblies.

Sales – A/R > Precalculation

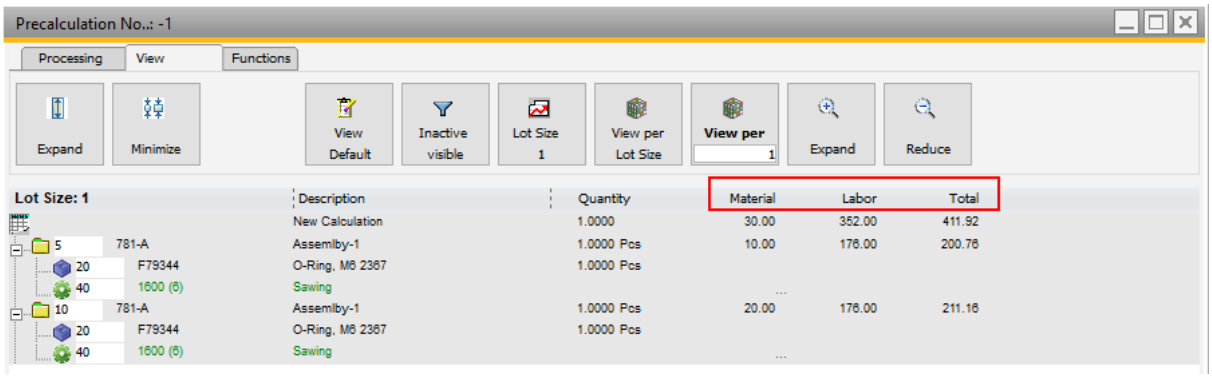
The standard pre-calulcation screen is shown. In our example, two items are added, two variants of an item where the raw material is at different cost.



6. Open the View tab and click on the **View Extended** button.

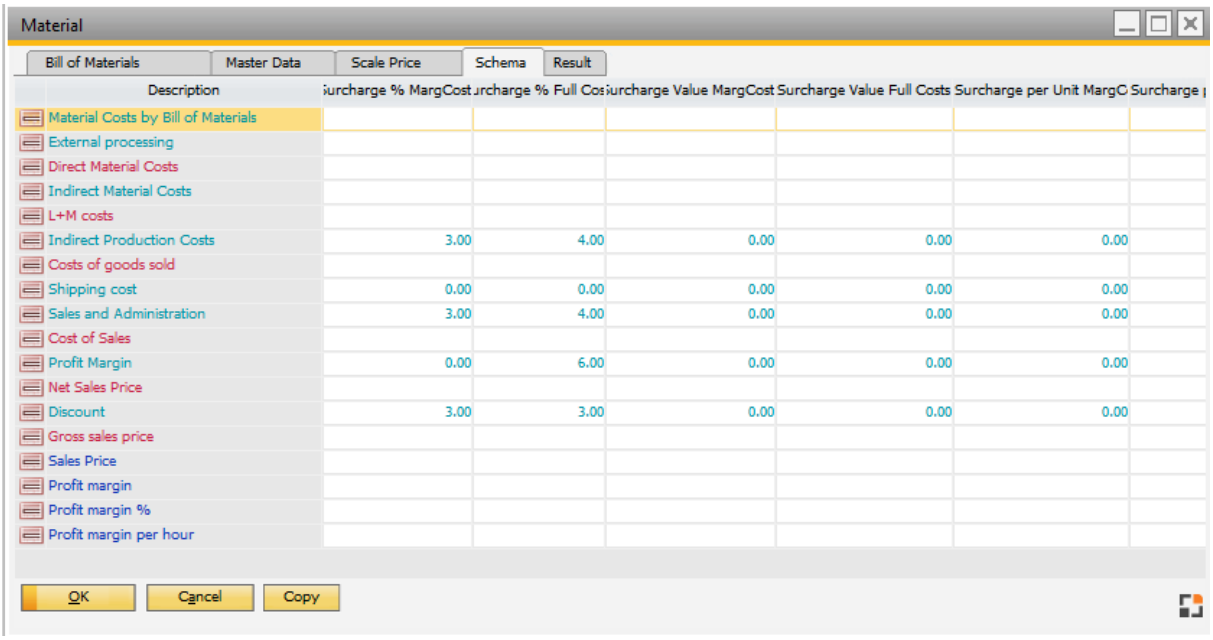


The breakdown is shown according to the setup in the schema Display tab.



7. Double-click on a position to open a screen with the Schema and the Result tabs.

The full schema is displayed for the selected assembly. The schema can be edited and the results for the calculation for this assembly are shown in the Result tab.



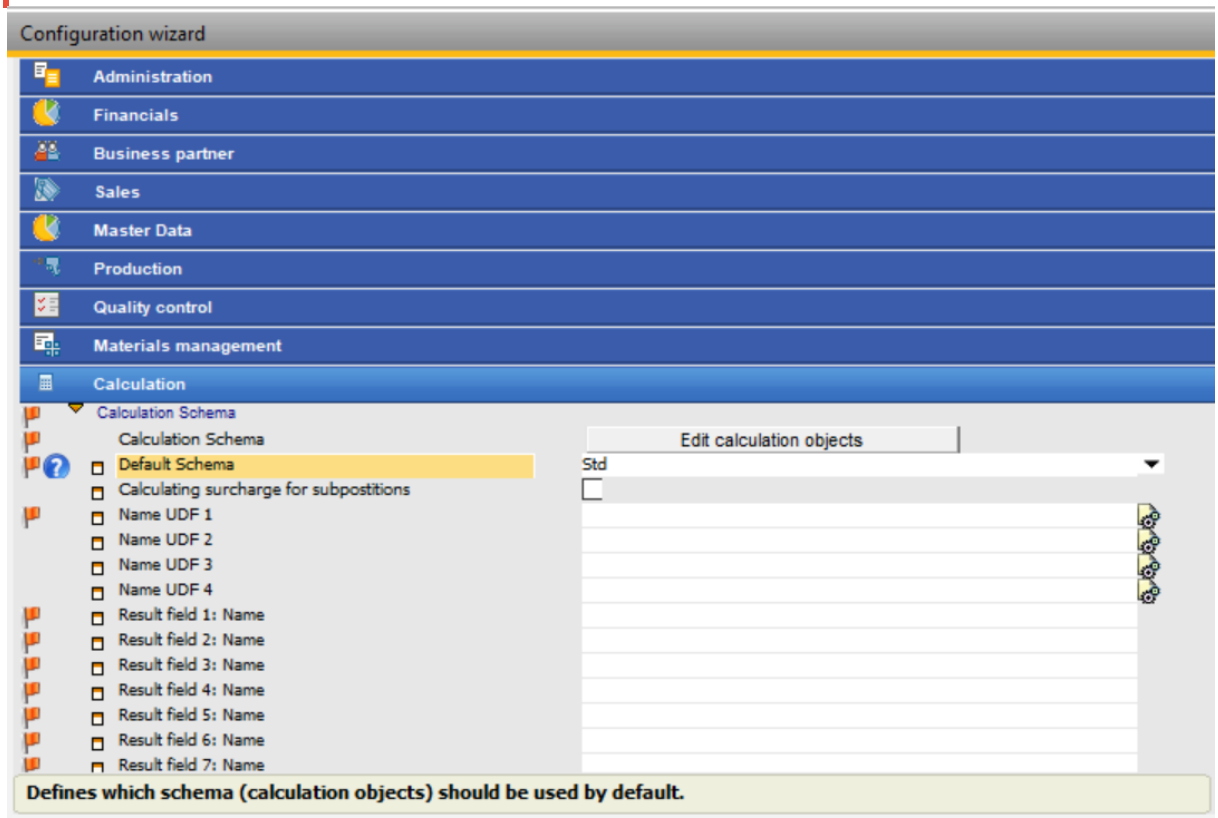
More tutorials are available on Calculation schema and Cost elements details.

1.3 Pre-calculation Configuration Wizard

Calculation Schema

A specific calculation schema can be set as default for pre-calculation runs.

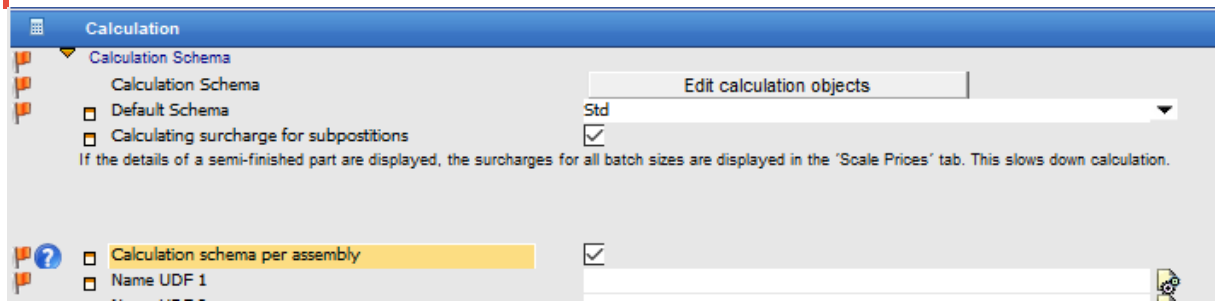
Administration > System Initialization > Configuration Wizard > Calculation > Calculation Schema



The default calculation schema can be set in the Default Schema field.

If there is nothing assigned as default, Beas to checks the item master data Calculation tab, Schema field.

Administration > System Initialization > Configuration Wizard > Calculation > Calculation Schema



Calculating surcharge for subpositions: Determines the calculation method in the pre-calculation view.

Calculation schema per assembly:Administrates calculation schema for extended view.

> Administration > System Initialization > Configuration Wizard > Calculation > Precalculation > Pricing

Material Pricing: Configuration attribute to specify the pricing of the materials when valuating assemblies.

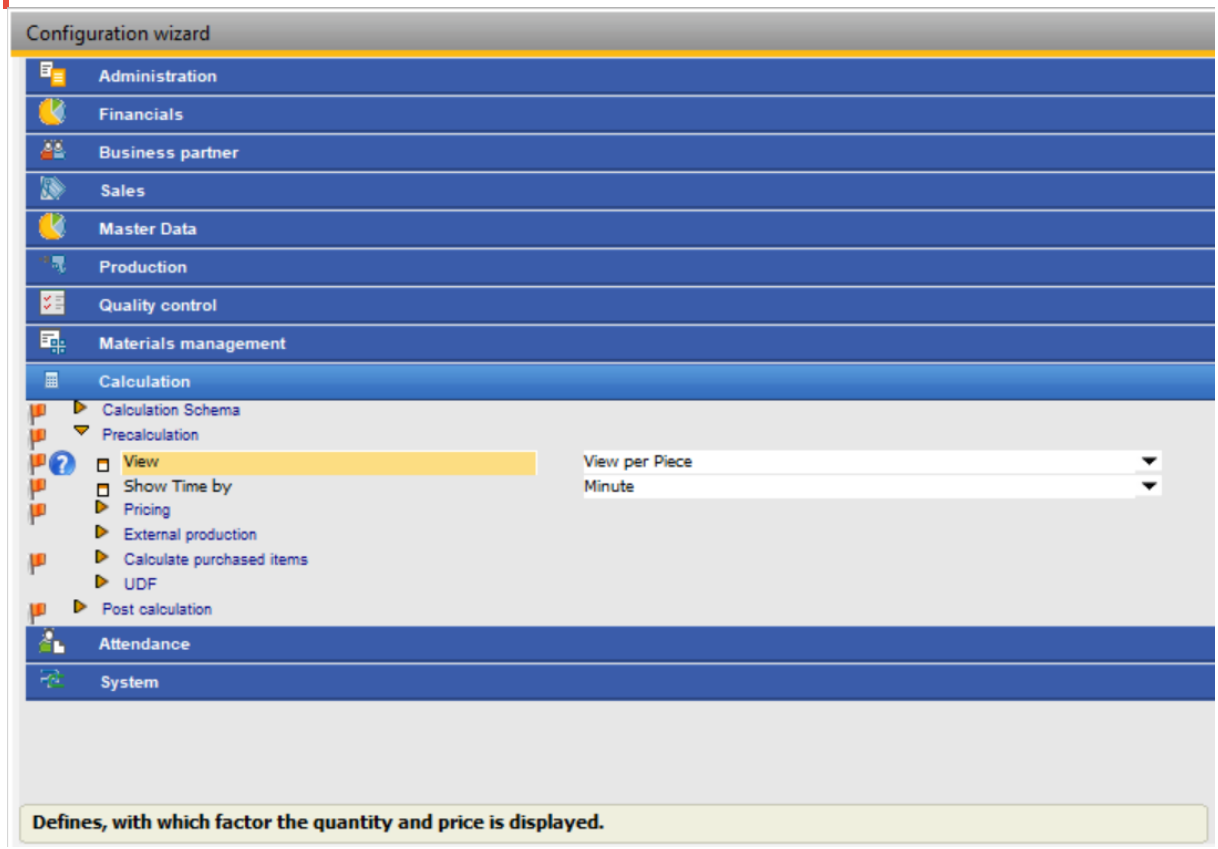
Material Pricing 2: Configuration attribute used to specify the pricing of the materials when valuating assemblies, it is used if there is no value defined for the Material Pricing attribute.

Consider Special Price List: Configuration attribute used to set whether to take into account the special price defined of a preferred vendor when valuating assemblies. This attribute has higher priority than Material Pricing option and relates only to pre-calculation and batch calculation.

Blanket Agreement Consider: Configuration attribute used to set whether to take into account a blanket agreement. If enabled, blanket agreements of type Specific are considered at pricing. If disabled, only the default pricing is used.

Precalcuation

Administration > System Initialization > Configuration Wizard > Calculation > Precalculation > View



View: This configuration attribute determines whether the values shown in the pre-calculation are:

- per unit
- per lot size
- per fixed amount

For a fixed amount, the amount (for example, 1000) can be specified in the next line. The view setting can be changed in the calculation.

Administration > System Initialization > Configuration Wizard > Calculation > Precalculation > Show Time by

Show Time by: This configuration attribute determines whether the times in the pre-calculation are displayed in hours or minutes.