GRAITEC MODELING THE FUTURE

What's New

Advance Workshop Steel 2025

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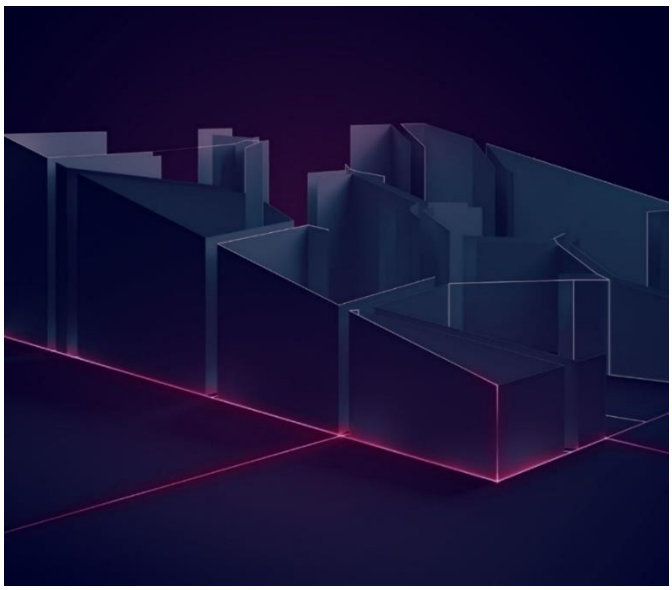
1. Welcome to Advance Workshop Steel 2025

GRAITEC presents the latest version of our manufacturing execution system - **Advance Workshop 2025**, part of the **GRAITEC FABRICATION SUITE**.



GRAITEC has continuously strived to provide first-rate advancements for innovative software solutions to its valued customers, and the recent launch of this new upgraded product range for 2025 reaffirms its position as a leader in offering top-level Construction, AEC, Building Design, and Fabrication software solutions worldwide.

This version of **Advance Workshop 2025** is enhanced with many new functionalities providing substantial value and benefits to users. This latest release incorporates consistent capability expansion to current functionalities as well, altogether designed to increase efficiency and the spectrum of possibilities available to meet industry-specific requirements.
Mentioning some of the most important topics, the following list is meant to provide a consistent overview of areas targeted by these developments:

Adding Steel Plates manually

- Aside from the existing possibility of adding manually steel profiles within Customer Orders or Quotations, we now introduce the possibility of adding steel plates, considering various types of shapes and dimensions, all configurable as per user needs.

Subcontracting

- Existing subcontracting functionality has been consistently improved by adding extended capabilities and better management starting with the Import stage and throughout the following stages, like Customer Orders or Quotations, Fabrication Orders, and status traceability, once it gets to and back from the Subcontractor.

Galvanization and Painting enhanced management

- There are new options for considering finishings like galvanization or any type of paint at Quotation level, weight, and coating area being able to be considered for price estimates regarding finishings.

Grouping items option for Quotation

- The Quotation tool can now group any items based on customer choice so that the quotation report has a compact and summarized layout, specific for the bidding stage.

Multiple Fabrication Orders to a Supplier Order

- You can now link multiple Fabrication Orders to the same Supplier Order, streamlining the procurement of requested materials and simplifying stock traceability.

Direct item-NC link

- NC, smlx, or GTCx files can be attached directly to an item and used together to produce for stock requirements.

Item definition on multiple levels (item-in-item reference)

- Products with complex definitions in their manufacturing process, such as multiple components on multiple levels (stages) of manufacturing, can now be managed automatically from the final product level.

Produce for Stock

- Even if we speak about complex products or common standard parts used in structural steel industry, this functionality will allow us to produce and keep in stock these types of products, prior to order submission.

Managing different units for items

- Items definition allows from now on to set different units (e.g. pcs, weight, linear…) for Supplier Orders, Stock, Invoicing, or even Production, providing bespoke materials' management at different levels.

Set operation prices according to multiple criteria

- Operation prices are now fully customizable according to criteria that suit better for you. Whether we consider the specific type of order (e.g. public or private), building destination (e.g. commercial, industrial, private…), or even the contractor's name, we can easily set different prices for any operation required along the manufacturing process.

Workstations (machines) operation times improvements

- Each operation time formula has been revised, providing enhanced results for estimated times along the manufacturing process. New operations and their times have been also included to be considered within production.

Lot/Phase import

- Phases (or Lots), a property assigned very often even from design/modeling stages and used later on during on-site erection, are now available for all file formats currently available for Import: smlx, Gtcx, NC (formats available from Revit and Advance Steel) or xsr (format available from Tekla).

External Nesting links

- The nesting module has been extended with a new type of connection with Lantek, a performant and well-known market solution for 2D (plates) nesting. This

enhancement gets next to the existing link with ProNest, confirming the capability of the Nesting Link module to be easily integrated with other similar software solutions.

Report Templates

- Several new report templates have been included as part of the initiative to extend the current report types available for out-of-the-box solution
- Quotation report
- Material Requisition List
- Job Traveler list
- AWS_NESTING1D
- AWS_FO_BY_WSTATION

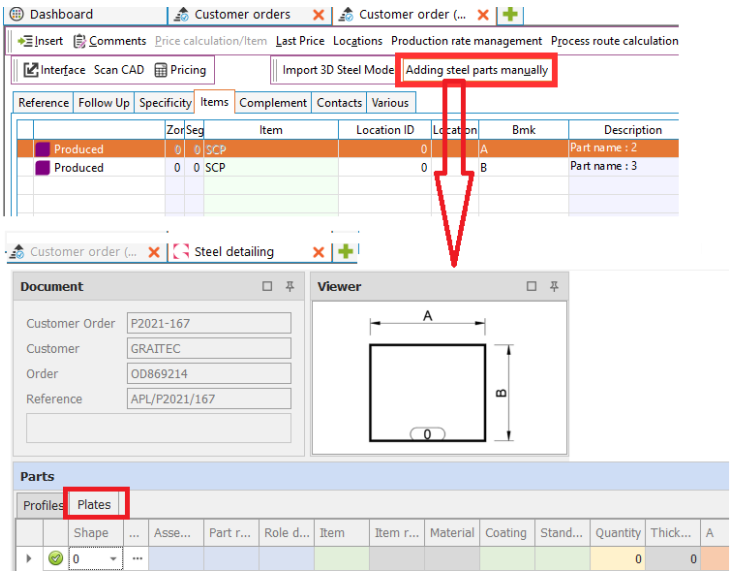
General enhancements

- The features highlighted in this section relate to overall functionalities available within the software, with multiple targeted enhancements being present within this section
- Import dialog enhancements related to subcontracting
- Nesting stock bar check against profiles managed through Stock
- Transparency and in-depth information about Nesting processing into a newly added log journal
- Mapping any operation type to any workstation type

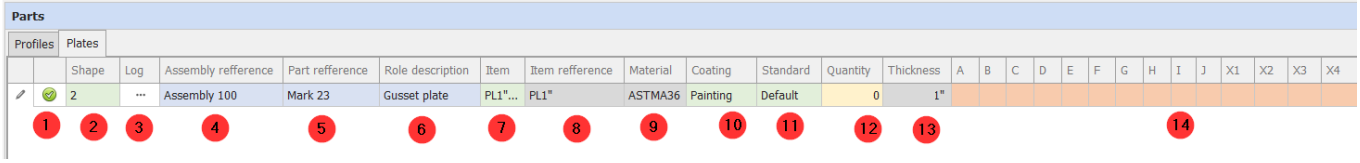
We are going to go through these features in detail and see individually what their capabilities are, how they work, and what advantages arise by using these functionalities.

2. Adding steel plates manually

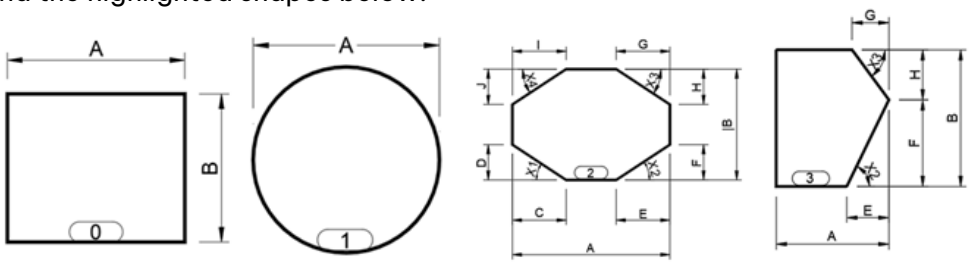
The latest update to our manufacturing software introduces a needed feature—the manual addition of steel plates in orders. This enhancement empowers users with more possibilities and control over their business needs, allowing them to seamlessly integrate custom steel plates freely to their exact requirements.
With such an improvement, the requirements source is extended to handle direct orders such as simple drawings, in electronic or physical format, bill of material lists information, or any other method used in an unexpected or last-minute situation.
The feature allows for the manual input of specific details related to the steel plates, such as shape, dimensions, quantity, grade, and more in-depth features, like holes or specific cuts. The manual addition functionality seamlessly integrates with existing modules within the software, including ordering, procurement, nesting, and production planning, streamlining workflows and enhancing overall efficiency.
The workflow starts from inside a customer or Quotation Order (menus 9.3.1 or 9.2.1), where click on the "Adding steel parts manually" option. Similar to what happened until now for steel profiles, a new dialog page opens, and a dedicated tab for Plates is now available.



The options available for adding plates are similar to profile sections, tailored to plate requirements, and enhanced with several new useful ones. Let's see what these are in more detail:



1: Check the status of the line record (validity of all parameters)
2: The "Shape" column allows you to choose between four different standard plate shapes
Together with geometrical parameters, the variety of plate shape outcomes gets easily extended though beyond the highlighted shapes below:

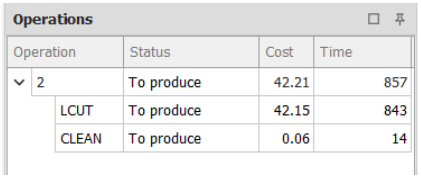


3: This "log" offers access to useful information regarding the assignment and validity check against the machines assigned by the "Process assignment tree" menu.
This represents a newly added check for both steel profiles and plates, similar to what's happening during models Import. It will run a real-time check against the machine's capabilities and warning, due to one of the plate's characteristics, machines have technical limitations in handling it.
4: Assembly reference number - this needs to be typed in
5: Part reference number - this needs to be typed in
6: Role description - this needs to be typed in
7: The item column references records found in the menu "1.10.4 Items" and has "Item nature" set as "Plates"
It's chosen by the user, and it represents the raw material for the defined plate.

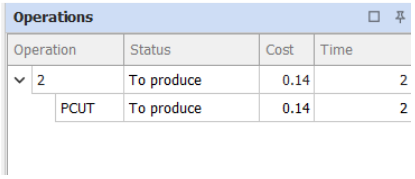
8: This field is automatically retrieved from the item's definition previously selected at point 7
The referenced field is "Generic item reference" found in the item's definition from the menu "1.10.4 Items"
9: This field is automatically retrieved from the item's definition previously selected at point 7
The referenced field is "Material" found in the item's definition from the menu "1.10.4 Items"
10: The option is selected manually through a combo box that lists the records found in the menu "3.1.8. Rebar Grades & Coatings"
11: The option is selected manually through a combo box that lists the records found in the menu "3.1.6. Standards"
12: The quantity is entered manually
13: The thickness column is filled automatically, based on the item selection from column 7
14: Geometrical parameters that define plate – all the values for these fields are typed in manually
The fields available and logic are interconnected with column 2 (Shape) and between them, ensuring checks regarding geometrical compatibility.

In addition to all these and in close relation with the validity check run from point 1 (see previous paragraph), a new window dedicated to required operations, is available for both Profiles and Plates.
The information provided inside the "Operations" window is retrieved based on the "Process assignment tree" configuration and items geometrical data (basically, according to the assigned Machine capabilities and element's features).

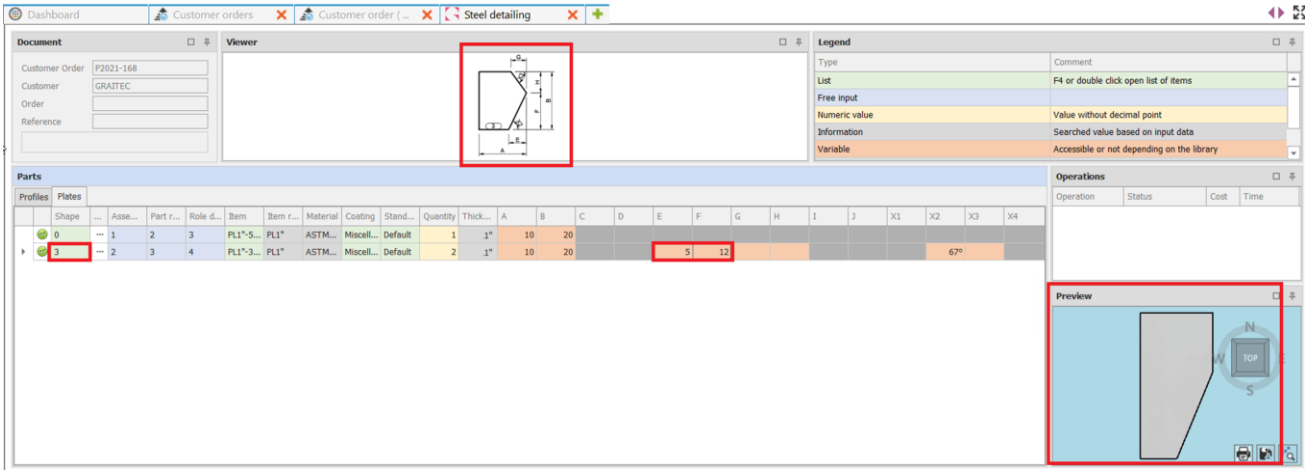
Profiles



Plates



A window called "Preview", dedicated to Plates only, can be localized on the bottom right side of the page. This view may be very useful when entering geometrical parameters that define plate shape, since this window updates in real-time the outcome shape. This feature provides more transparency and flexibility in defining various plate shapes that are particular cases for the standard ones. Below you will find a basic example of such a situation, where a gusset plate shape is drawn based only on several parameter values.

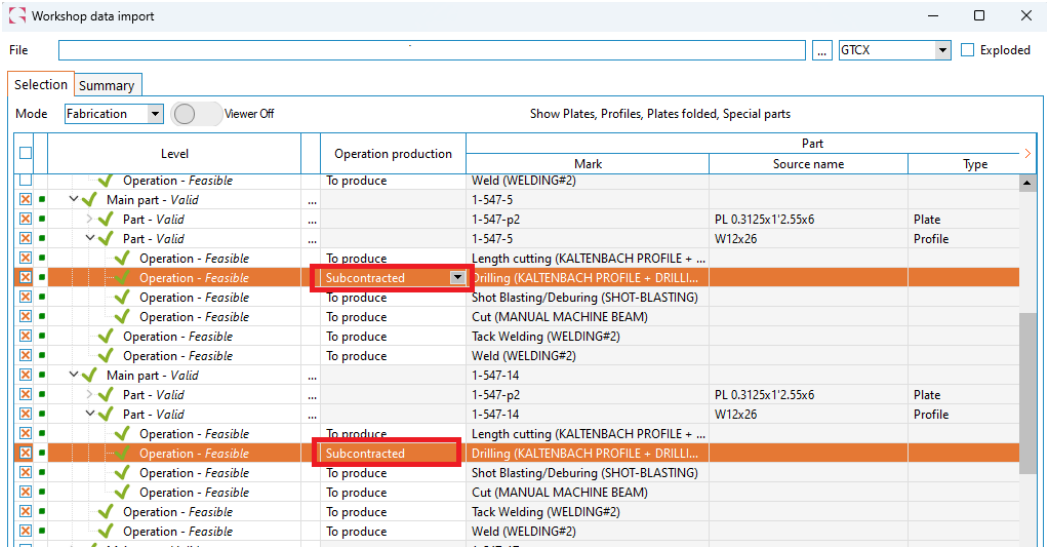

Dashboard
Customer orders
Customer order (...
Steel detailing
Document
Customer Order
P2021-168
Customer
GRAITEC
Order
Reference
Viewer
Legend
Type
Comment
List
F4 or double click open list of items
Free input
Numeric value
Value without decimal point
Information
Searched value based on input data
Variable
Accessible or not depending on the library
Parts
Profiles
Plates
Operations
Operation
Status
Cost
Time
Preview
N
W
TOP
S

3. Subcontracting

This version introduces an enhanced management of subcontracted operations and finishings. The mechanisms are slightly different between them, so they are going to be detailed separately.

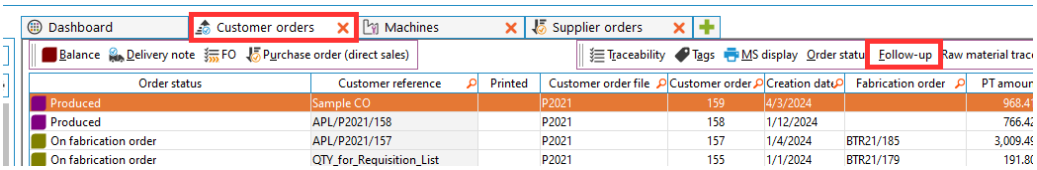
3.1. Subcontracting operations

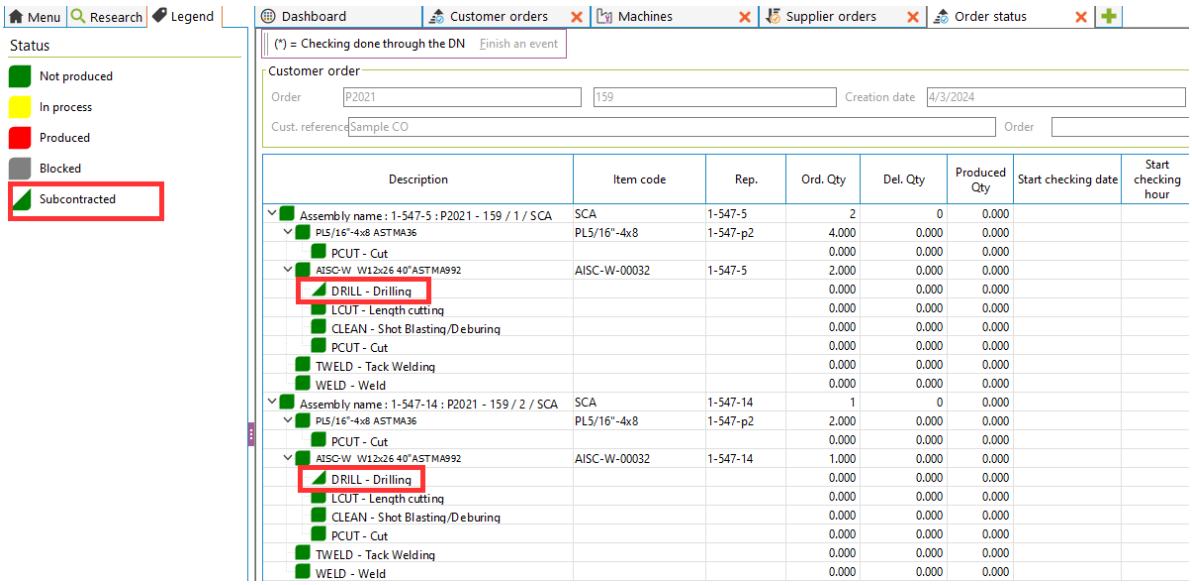
Either if it's set manually during import or it's automatically assigned due to automatic configurations in the "Process assignment tree", the status of the operation can be set as "*Subcontracted*".
This means that the designated operation(s) as Subcontracted is not going to happen in the workshop, being "sent" to a third-party executant (subcontractor) and "received" later.



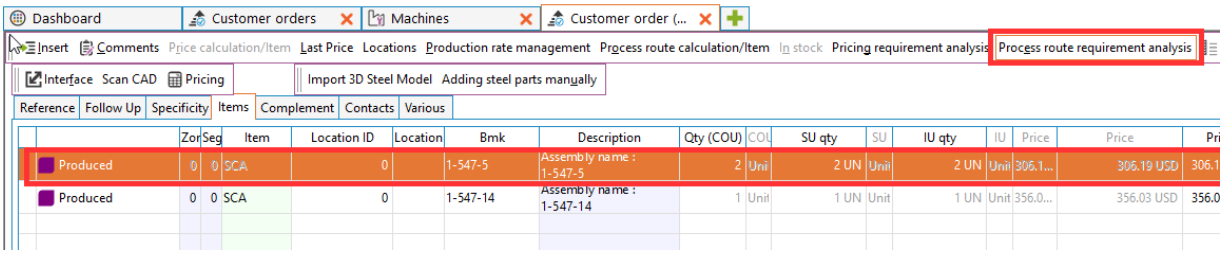
Please note that the status of each operation, including Subcontracted ones, can be tracked for each Customer Order in two ways:

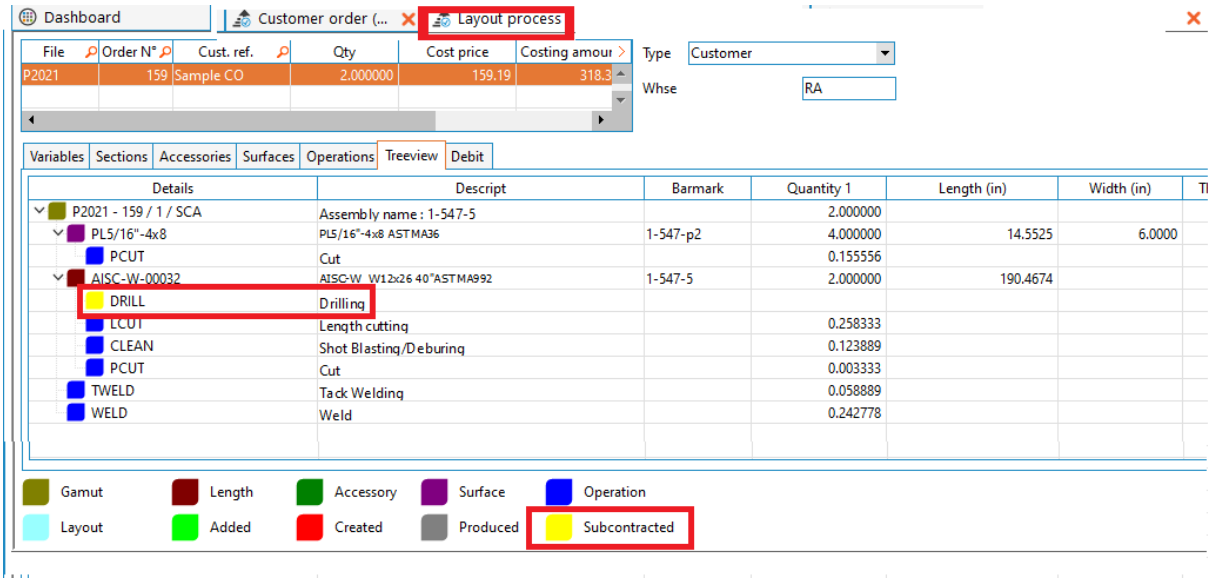
- From "9.3.1. Customer Orders" menu, by accessing the "Follow-up" option



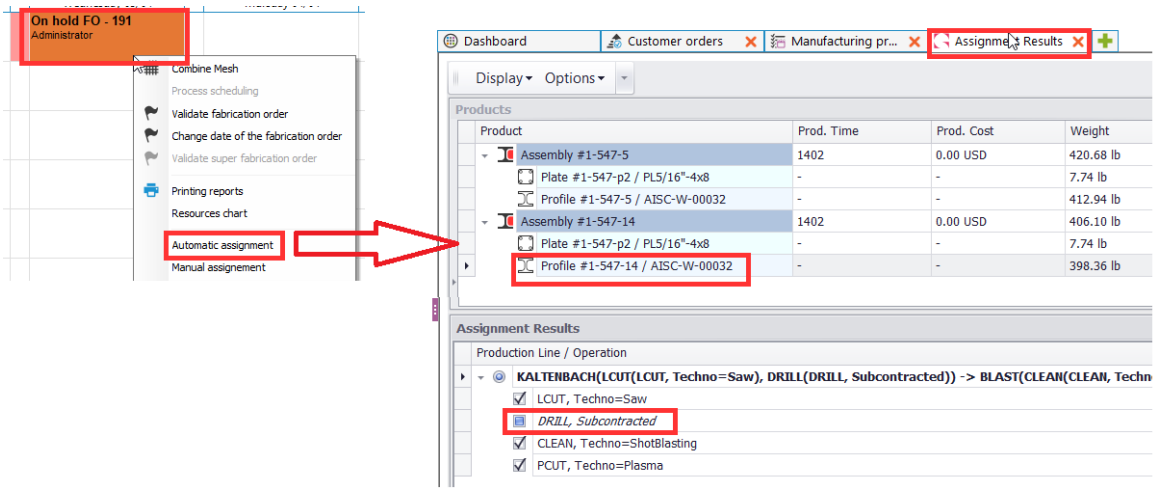


- By accessing the Customer Order (from "9.3.1. Customer Orders" menu) and choosing "Process route requirement analysis" for the selected Customer Order line

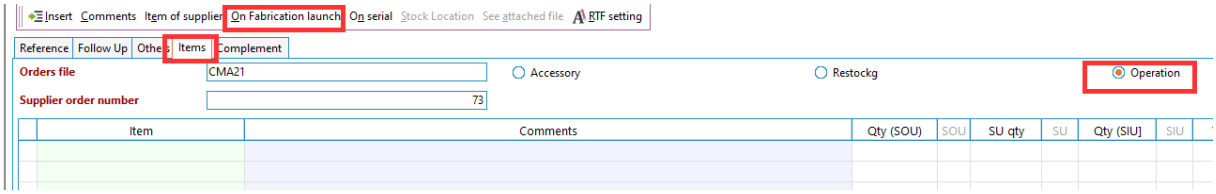




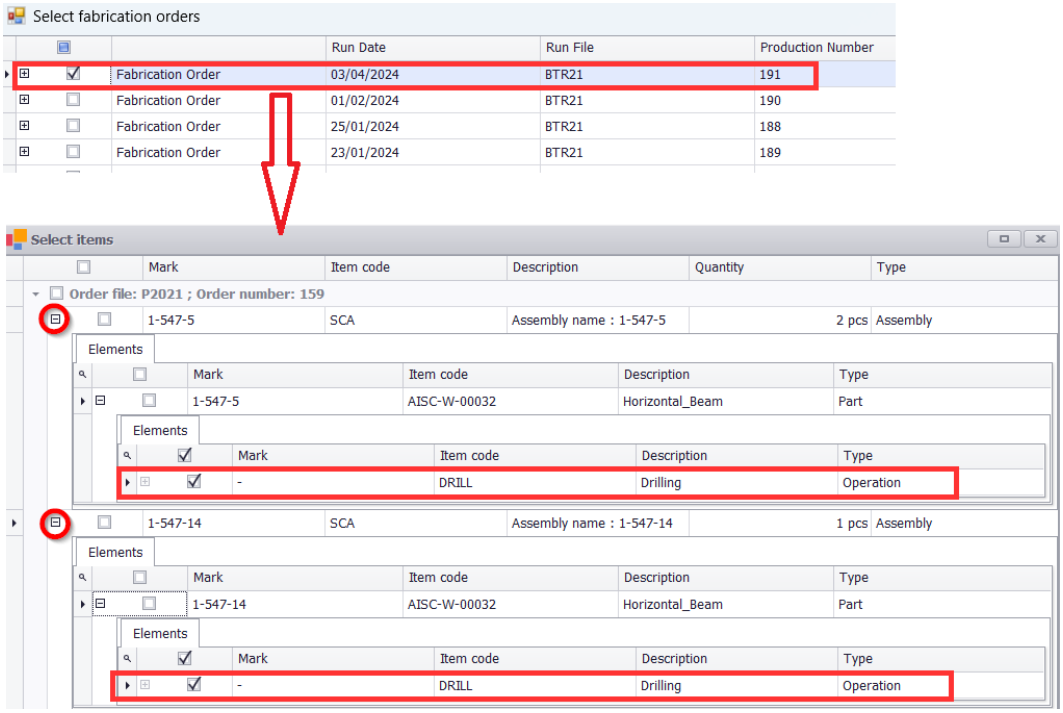
Please note that the status of the Subcontracted operations from these dialogs is going to be updated according to the production stages' evolution.
Once a "Fabrication Order" is created, the status of the Subcontracted operations is also kept along the process. This can be checked by going to the menu "7.10 Manufacturing production planning", selecting the Fabrication Order, and choosing "Automatic assignment".



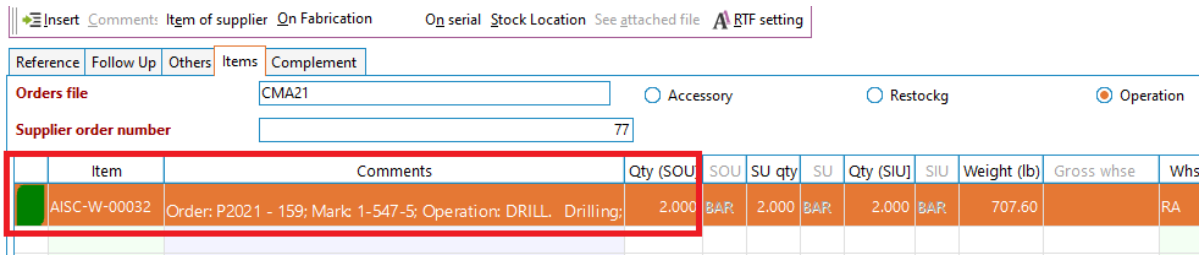
To externalize the execution of the subcontracted operations, a Supplier Order is required to be created. This is done by accessing the menu "2.1.6 Supplier Orders" and creating a new Supplier Order with the following settings (make sure the "Operation" radio button is selected):



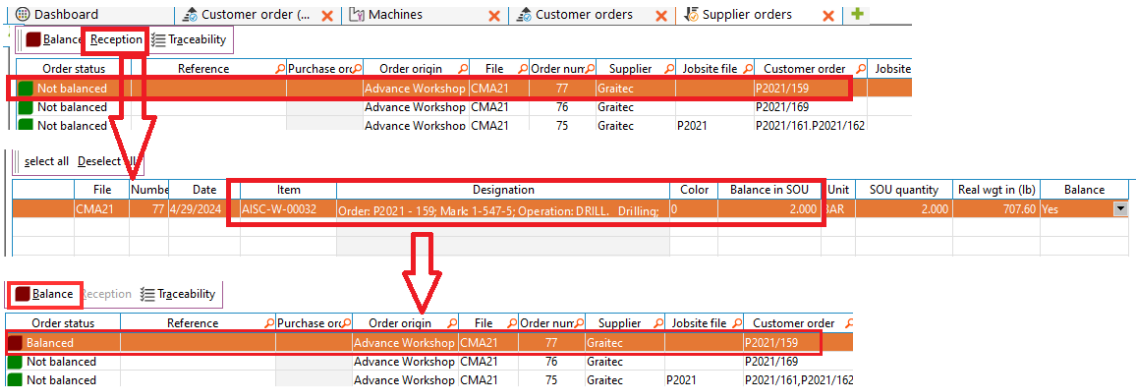
Select the "On Fabrication launch" option and choose the Fabrication Order previously created. Select the required operations (only operations previously set as Subcontracted are going to be available in this dialog).



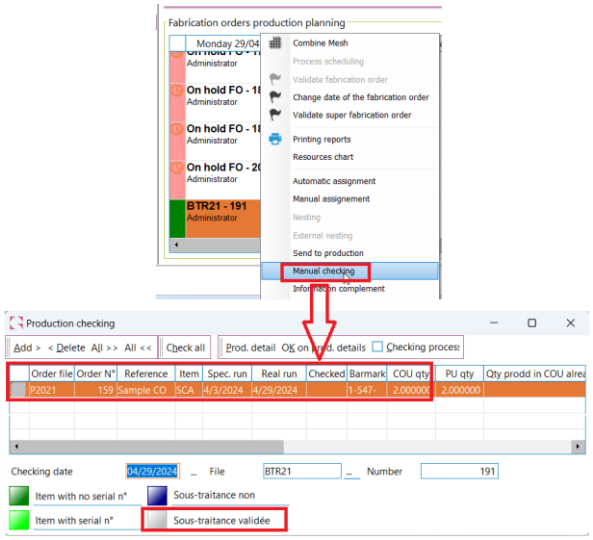
After the operations are selected and the dialog is closed, the Supplier Order contains information about the parts and subcontracted operations.



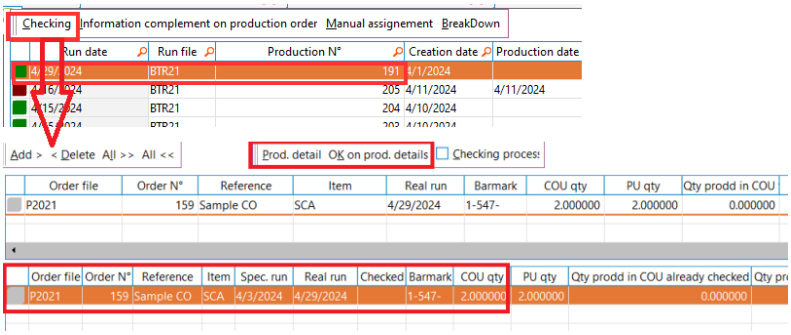
Going further, once the operations are executed by the subcontractor and the steel elements are received back, we need to mark this into the system. In order to do that, it's needed to "Reception" (or Balance) the previous Supplier Order. The reception can be done completely (balance) or partially (only for several operations), as can noticed in the bellow picture.



Once this step is ended, the Supplier Order is marked as "Balanced" and we can go back to the production stages and continue the manufacturing process. Each of the menus 7.10 or 7.2 will highlight the production status.



In the menu "7.10 Manufacturing production planning", select the Fabrication Order, right-click, choose "Manual checking" and note the status of the subcontracted element as being valid (subcontracting is considered also validated).

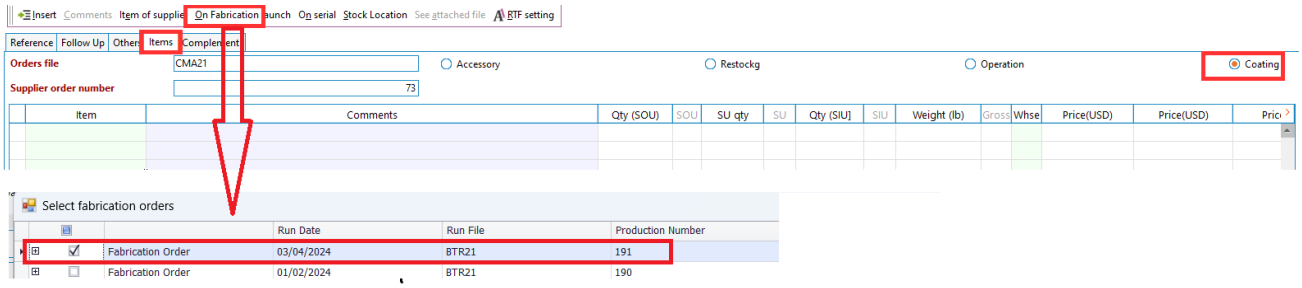


In the menu 7.2 Launching on Order, click on "Checking" and notice the status of the subcontracted elements as being valid (subcontracting is considered also validated).

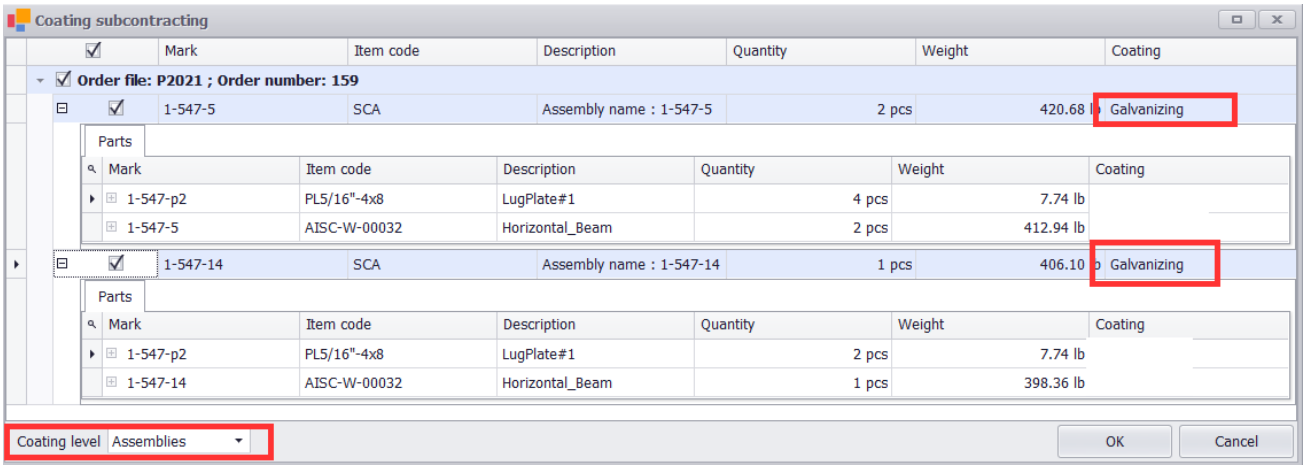
Regardless of the menu, by choosing "OK on prod details", the elements will be declared as being fabricated.

3.2. Subcontracting finishings (coatings)

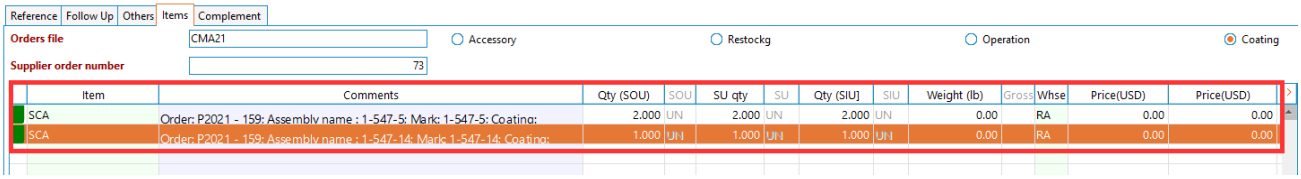
The finishings (e.g. galvanization, different types of paintings…) designated to protect steel elements can be subcontracted as well. By comparison with operations subcontracting that needs to be declared as Subcontracted even from Import dialog or Fabrication Order, the subcontracting of finishings starts directly from the Supplier Order.
First, a Supplier Order needs to be created and open from the menu "2.1.6 Supplier Orders".
From the Item tab, select the "Coating" radio button and press "On Fabrication Launch". Choose the right Fabrication Launch from the next dialog.



Once the Fabrication Order content is open, you can switch between two selection modes, as mentioned in the "Coating level" (see the bottom left side of the page):
Assemblies – will allow to set a coating for the entire assembly
Parts – will allow to set a coating individually, at each Part of the assembly
In this example, we've chosen the "Assemblies" option and we've chosen "Galvanizing" as coating.



After the elements designated to be subcontracted for galvanization are selected and the dialog is closed, the Supplier Order should list information about the subcontracted items and the goal (e.g. Coating: Galvanization).

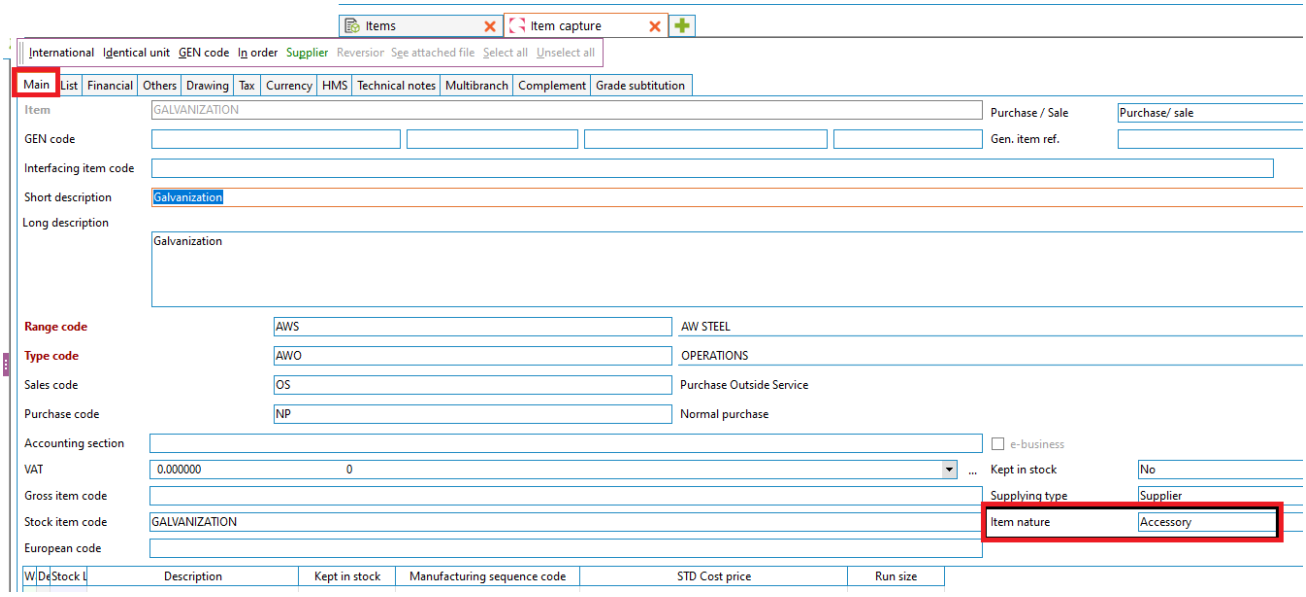


Once the elements get back from the Subcontractor, this step is registered by creating a Reception or just Balance the Supplier Order.
This can be achieved either directly, from the menu "*2.1.6 Supplier Order*", or from the menu "*2.2.2 Receptions*". Please note that reception can be done partially (only some of the subcontracted elements are received) or completely.

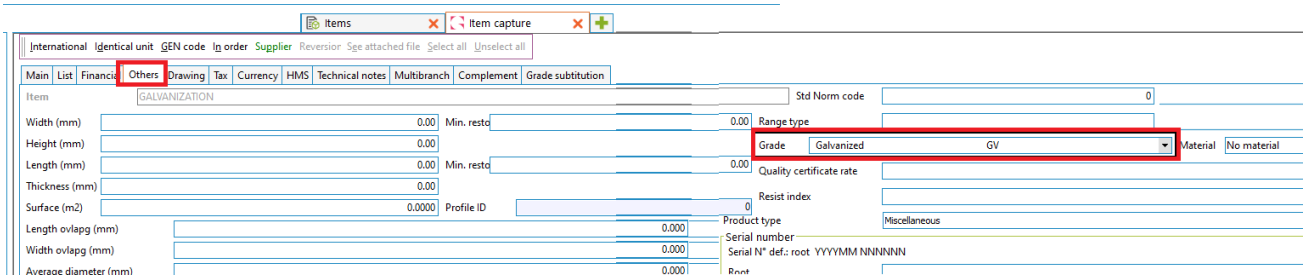
4. Galvanization and Painting enhanced management*

The finishings (coatings) have gained more versatility in the way they can be configured. If most of the steel projects require a type of coating, there are consistent differences between certain types of coatings, like galvanization and any type of paint. We consider here not only the way of how these types of coatings are estimated but also the way they can be managed and the financial requirements for each solution.
It all starts with defining newly **dedicated items for the coating type** in the menu "1.10.4 Items". It's important to note that the "item codes" of the coatings should not be identical with any "Code" operation listed in menu "1.12.2 Operations". These coating item definitions should have certain settings, according to the way they are going to be evaluated (e.g. we want to have coating based on main element's weight or lateral surface.

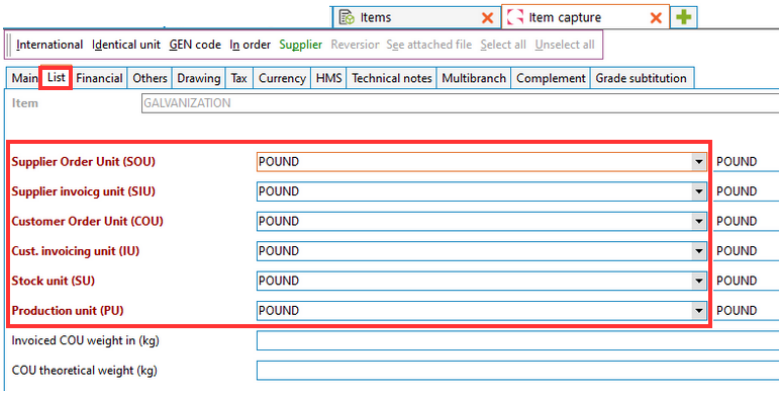
- Item's nature should be always set as "Accessory"



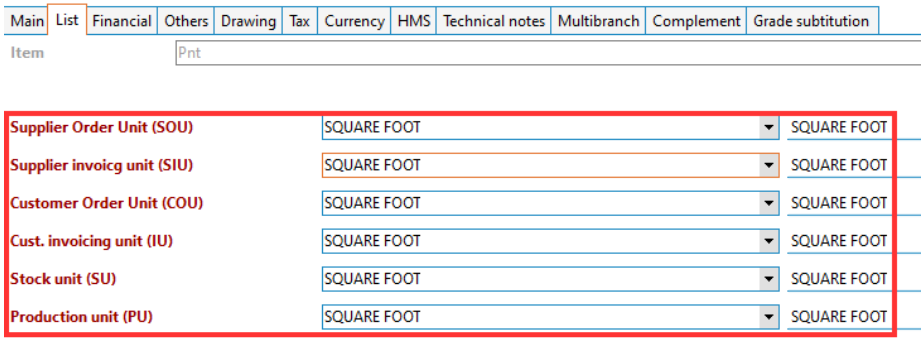
- Item's grade should be set as "Galvanized" or "Paint"; new Grades can be defined in menu "3.1.8 Grades"



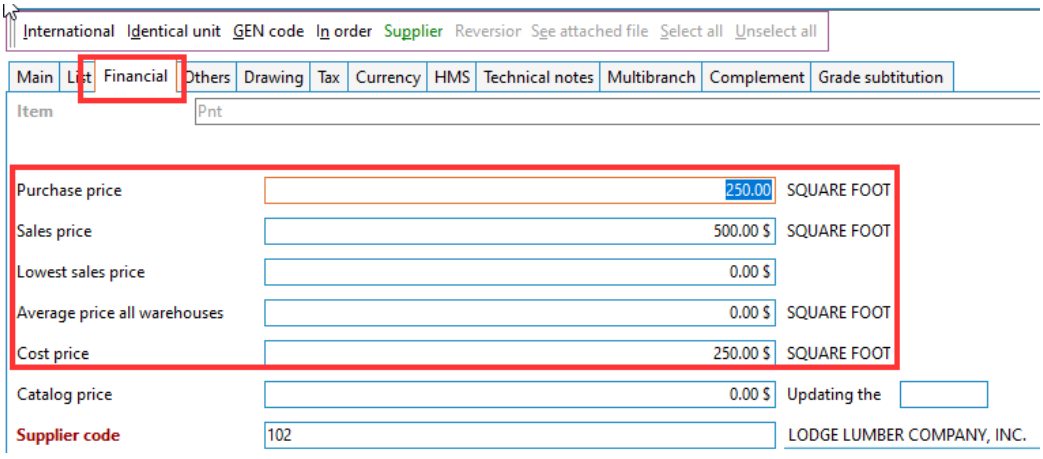
- "Units" for coating items need to be set according to the unit measurements relevant to the corresponding steel elements.
- E.g.:
  - For Galvanizing items is common to set weight units (POUNDS or KILO)



- For Painting items is common to set lateral surface units (SQUARE FOOT or SQUARE METER)

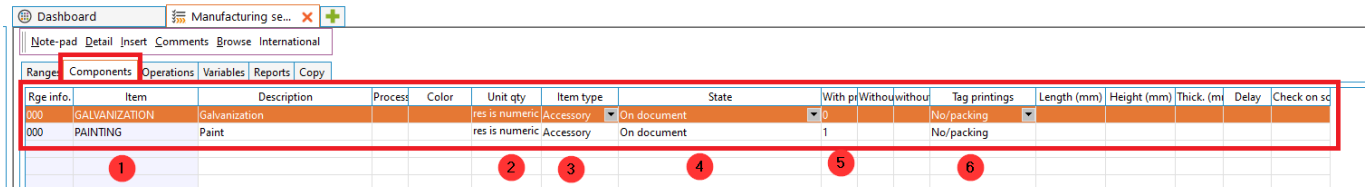


- Each of this coating items needs to also have set costs and prices, according to their units



Next step is to **<u>associate these coating items with the items dedicated to steel assemblies and parts (SCA and SCP).</u>**
This is done through menu "1.13.3 Manufacturing sequence", where GAMSCA and GAMSCP (the manufacturing sequences designated for SCA and SCP items) are defined. For each GAMSCA and GAMSCP the following settings need to be done:

- Go to "Components" tab and add the recently two new added items for Coatings (in this example, they are called "Galvanization" and "Painting")



1: "item code" of the Coating's items
2: this column sets the "quantity" for Galvanization and Painting items
Since we want that both Coating items to relate with an Assembly or Part property, some scripts are required to compute the required information from each Assembly or Part.
This can be done by clicking in the 'Unit qty' column and paste script content.
Example:

- Galvanization item's quantity is Assembly or Part weight
- Painting item's quantity is Assembly or Part lateral surface

Due to the limited space of this document and in order to keep it relatively simple, here is just a partial information of how such a script looks like.

```
res is numeric(*)
coatingComp is string = "-"
Query is rSQL
Query:cCommande = "SELECT GRADE_CODE FROM " + SQL_c:ReqBase("ITEM") + " WHERE
ITEM_CODE = " + SQL_c:ReqQuote(gpGPC:Item_Code)
IF Query:Exec() THEN
    IF NOT Query:OutSide() THEN
        coatingComp = Query:ColC(1)
    END
Query:Close()
END
IF coatingComp = "@A03" THEN
    res = @A04
ELSE
    res = 0
END
RESULT res
```

3: "item type" always needs to be set as "Accessory" (even if the original item's nature is set otherwise)
4: "State" option:

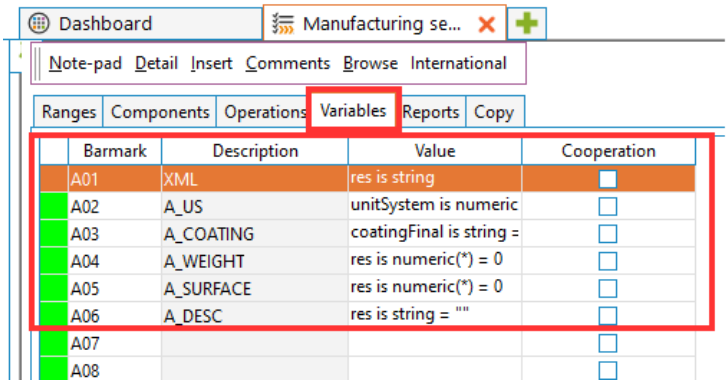
- If it's set as "On document" -> it will display the component as its own individual line
- If it's set as "Consumed" -> it will consume the component as part of the main item (SCA or SCP)

5: "With price" option

- If it's set as "0" -> the price for the coating item is considered inside the SCA or SCP items
- If it's set as "1" -> the price for the coating item will be shown as individual line

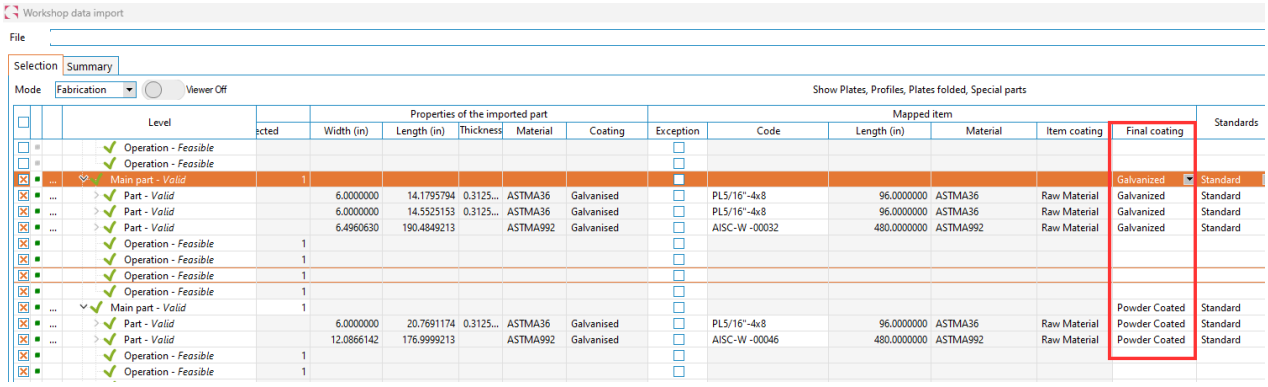
6: "Printing tags" option allows you to associate or not tags (barcodes) to the components

- These "Components" are going to be linked through scripts (see point 2 from the next paragraph) with "Variables", that are slightly different for GAMSCA and GAMSCP



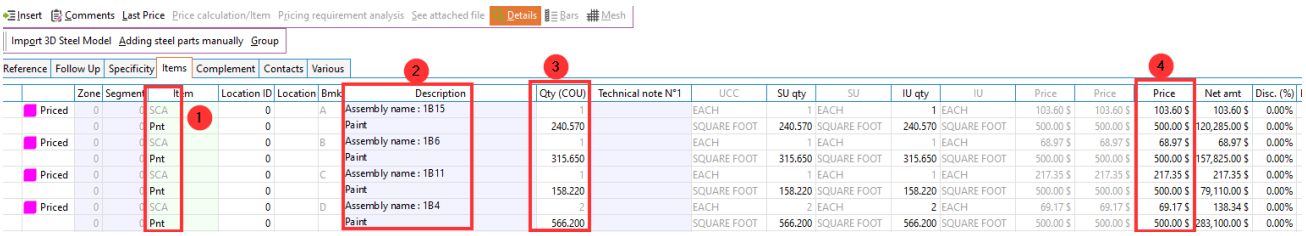
Once all these have been done, everything is set, and we can go to import the project data.

From the menu "9.2.1 Quotes", create a New Quote, go to the "Items" tabs and "Import 3D Steel Model":

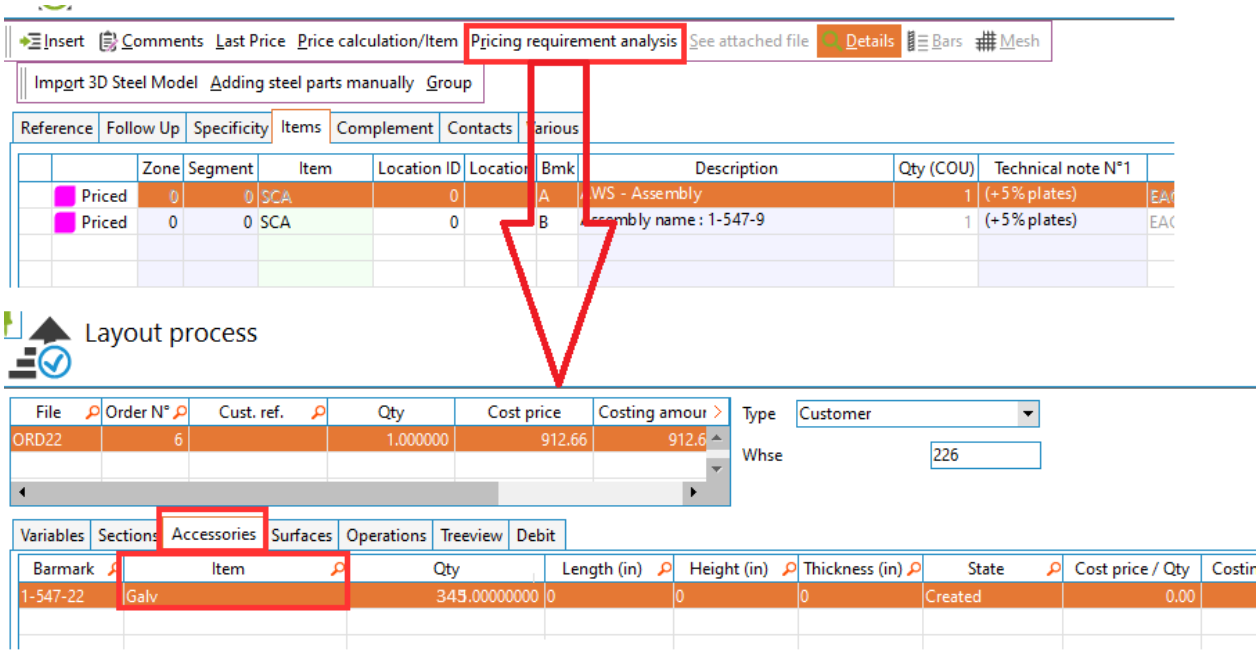


At this point, it's important to select the correct type of coating in "Final coating" field (e.g. Galvanizing or Paint), in order to benefit of the set environment for Finishings.

This is the import result in Quotation, if Painting item is set as "On document", inside SCA's Manufacturing Sequence:

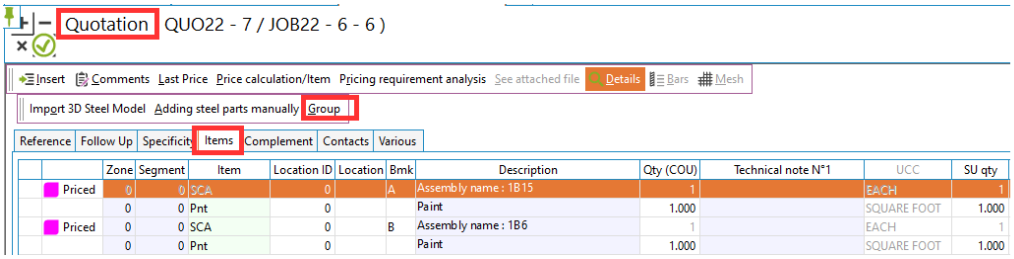


1: item codes (note that Pnt item has been created for each SCA item)
2: item descriptions
3: quantity (a Painting item should have the lateral area of the corresponding Assembly; a Galvanization item would have the weight of the corresponding Assembly)
4: price, in case of Painting or Galvanization items should be "item cost X Qty" (from point 3)
Here is the import result in Quotation, if Galvanizing item is set as "Created", inside SCA's Manufacturing Sequence:



5. Grouping items option for quotation

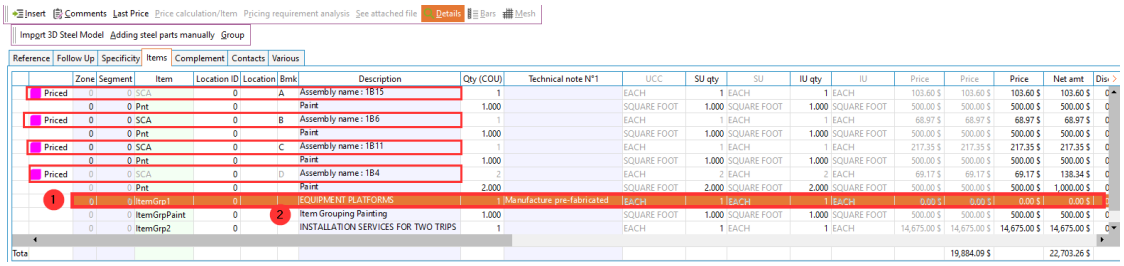
A new option called "Group" is available inside Quotations (see menu "9.2.1. Quotes"). This feature, together with the previous enhancement about the management of "Galvanization and Painting", provides flexibility in building and presenting the Quotations report during bidding project stages.



	Zone	Segment	Item	Location ID	Location	Bmk	Description	Qty (COU)	Technical note N°1	UCC	SU qty
Priced	0	0	SCA	0		A	Assembly name : 1B15	1		EACH	1
	0	0	Pnt	0			Paint	1.000		SQUARE FOOT	1.000
Priced	0	0	SCA	0		B	Assembly name : 1B6	1		EACH	1
	0	0	Pnt	0			Paint	1.000		SQUARE FOOT	1.000

One of the common situations where such functionality makes sense is if we want to have a compact Quotation report when available project data has a high level of details or too granular list of items even from early project stage.
The "Group" option allows you bringing into "one record line" any items combination, according to user selection. The quantities, costs and prices are automatically computed, for this new "grouped" item line, allowing entering freely a description shown in the report (see "Technical note No1" as example).

Below is an example of a Quotation where the structural elements have been available at a detailed level (multiple record lines with steel assemblies being available at import) and coating solution has been also set as Paint. All the structural elements have been "grouped" under one item line (see bullet no. 1) and all painting quantities and costs (calculated individually, based on each assembly area information) have been also grouped" under one item line (see bullet no. 2).



	Zone	Segment	Item	Location ID	Location	Bmk	Description	Qty (COU)	Technical note N°1	UCC	SU qty	SU	IU qty	IU	Price	Price	Price	Net amt
Priced	0	0	SCA	0		A	Assembly name : 1B15	1		EACH	1	EACH	1	EACH	103.60 $	103.60 $	103.60 $	103.60 $
	0	0	Pnt	0			Paint	1.000		SQUARE FOOT	1.000	SQUARE FOOT	1.000	SQUARE FOOT	500.00 $	500.00 $	500.00 $	500.00 $
Priced	0	0	SCA	0		B	Assembly name : 1B6	1		EACH	1	EACH	1	EACH	68.97 $	68.97 $	68.97 $	68.97 $
	0	0	Pnt	0			Paint	1.000		SQUARE FOOT	1.000	SQUARE FOOT	1.000	SQUARE FOOT	500.00 $	500.00 $	500.00 $	500.00 $
Priced	0	0	SCA	0		C	Assembly name : 1B11	1		EACH	1	EACH	1	EACH	217.35 $	217.35 $	217.35 $	217.35 $
	0	0	Pnt	0			Paint	1.000		SQUARE FOOT	1.000	SQUARE FOOT	1.000	SQUARE FOOT	500.00 $	500.00 $	500.00 $	500.00 $
Priced	0	0	SCA	0		D	Assembly name : 1B4	2		EACH	2	EACH	2	EACH	69.17 $	69.17 $	69.17 $	138.34 $
	0	0	Pnt	0			Paint	2.000		SQUARE FOOT	2.000	SQUARE FOOT	2.000	SQUARE FOOT	500.00 $	500.00 $	500.00 $	1,000.00 $
	0	0	ItemGrp1	0			EQUIPMENT PLATFORMS	1	Manufacture pre-fabricated	EACH	1	EACH	1	EACH	0.00 $	0.00 $	0.00 $	0.00 $
	0	0	ItemGrpPaint	0			Item Grouping Painting	1.000		SQUARE FOOT	1.000	SQUARE FOOT	1.000	SQUARE FOOT	500.00 $	500.00 $	500.00 $	500.00 $
	0	0	ItemGrp2	0			INSTALLATION SERVICES FOR TWO TRIPS	1		EACH	1	EACH	1	EACH	14,675.00 $	14,675.00 $	14,675.00 $	14,675.00 $
Tota																19,884.09 $		22,703.26 $

The final report submitted for bid looks like this:

ATTN :

Quote No.	Date	Customer	Sales Rep	Lead Time	F.O.B.
QUO22-7	24/11/2023			25/11/2023	In progress

Line	Quantity	UM	Part	Description	Price $	Extension $
1	1.000	EACH	EQUIPMENT PLATFORMS	Manufacture pre-fabricated components for (1) freestanding structural equipment platforms (nut & bolt) construction according to the following specifications: Dimensions: (2) 20'-0" x 8'-0" Modules connected by Upper Bridge Overall Dimension: 46'-6" x 8'-0" Usage: Equipment Support and/or Access Live Load: 125 psf Top of Deck: 11'-2.75" Under Clearance: 10'-0" Decking: 1" x 3/16" Painted Bar Grating (1) Stairway with Upper Bridge Landing 6'-6"" x 8'-0" 56 LF of 42" Tall Pipe Guard Rail with 4" Min. Kick Plate Powder Coat Paint Finish Color(s) of Customer's Choice	459.09	528.26
2	1.000	SQFT	Item Grouping Painting		2,000.00	2,500.00
3	1.000	EACH	INSTALLATION SERVICES		14,675.00	14,675.00
4	2.000	EACH	DEDICATED TRUCKS		2,250.00	4,500.00

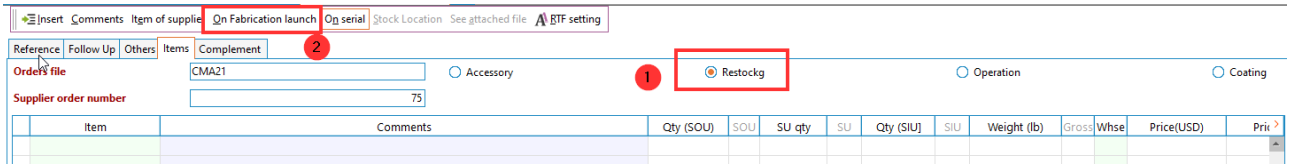
This quote includes P.E. stamped drawings **Total for Quote $** **22,203.26**

AISC CERTIFIED FABRICATOR

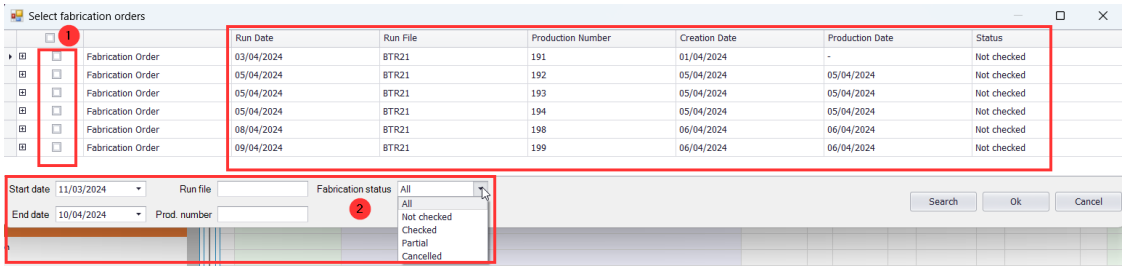
Please call if Quote is more than 30 days from Quote date

6. Multiple fabrication orders to a supplier order

This version extends Supplier Orders capabilities to include multiple Fabrication Orders demands within same Supplier Order. This feature brings with him also an overhaul of the dialog that manages this process.
It worth mentioning that, since same Supplier Order functionality is being used for the management of Subcontracting processes (like manufacturing Operations or Coatings – see paragraph 2), this functionality is available for these as well, offering more versatility with the work management done by external parties.
By getting inside the menu "2.1.6 Suppler Orders" and creating a new order, we need to go at the "Items" tab and select "Restock" (the other two options, "Operations" and "Coating" being used for Subcontracting workflows).

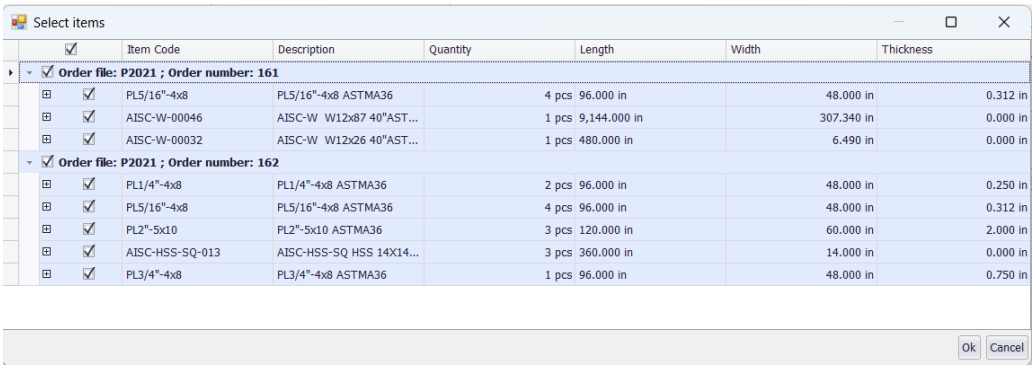


Next step is to hit "On Fabrication launch button" and new dialog is open:

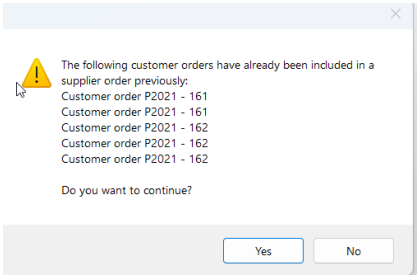


1: check what Fabrication Orders are considered for the current Supplier Order
2: filtering options for the Fabrication Orders list

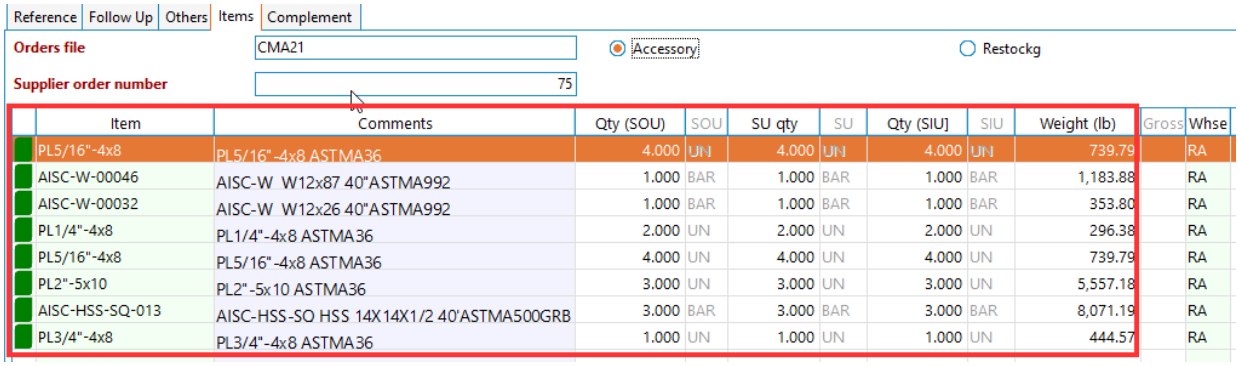
Once Fabrications Orders are selected, the required raw materials will be listed, and grouped according to the Customer Orders from which are part of.



An additional check is run in the back-end if the elements have been previously selected in another Supplier Order:



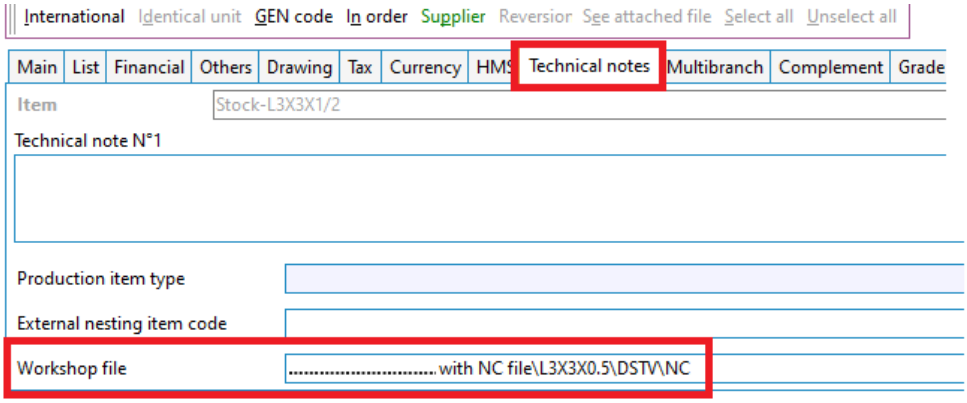
The Supplier Order raw materials are listed together with their quantities, weight and prices.



Item	Comments	Qty (SOU)	SOU	SU qty	SU	Qty (SIU)	SIU	Weight (lb)	Gross	Whse
PL5/16"-4x8	PL5/16"-4x8 ASTMA36	4.000	UN	4.000	UN	4.000	UN	739.79		RA
AISC-W-00046	AISC-W W12x87 40"ASTMA992	1.000	BAR	1.000	BAR	1.000	BAR	1,183.88		RA
AISC-W-00032	AISC-W W12x26 40"ASTMA992	1.000	BAR	1.000	BAR	1.000	BAR	353.80		RA
PL1/4"-4x8	PL1/4"-4x8 ASTMA36	2.000	UN	2.000	UN	2.000	UN	296.38		RA
PL5/16"-4x8	PL5/16"-4x8 ASTMA36	4.000	UN	4.000	UN	4.000	UN	739.79		RA
PL2"-5x10	PL2"-5x10 ASTMA36	3.000	UN	3.000	UN	3.000	UN	5,557.18		RA
AISC-HSS-SQ-013	AISC-HSS-SQ HSS 14X14X1/2 40'ASTMA500GRB	3.000	BAR	3.000	BAR	3.000	BAR	8,071.19		RA
PL3/4"-4x8	PL3/4"-4x8 ASTMA36	1.000	UN	1.000	UN	1.000	UN	444.57		RA

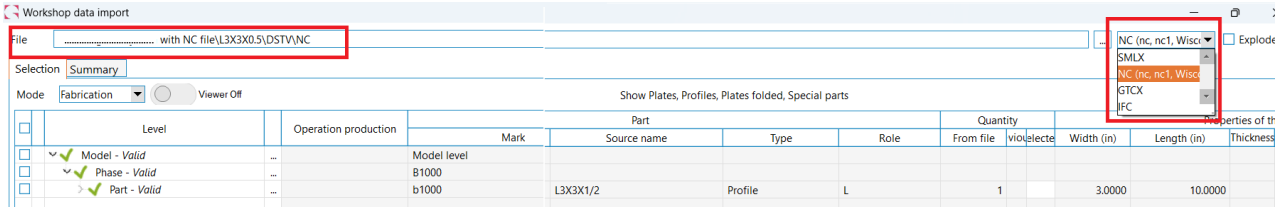
7. Direct item-NC link

Starting with the 2025 version you can attach an NC file directly to an item definition.
Going to menu "1.10.4 Items" – tab "Technical notes", you can notice a new option called "Workshop file" at the bottom side of the page. This asks for a path to the NC file.



Once you chose a path, an Import dialog opens, requiring mapping the imported file to a database item. This process is identical with what is happening during Import in a Customer or Quotation Order.

It worth mentioning that this association (item and geometrical data) is not limited at NC files only, being able do it also with SMLX or GTC file formats. Once all the information is added, the dialog should show that everything is valid, and the import can be done:

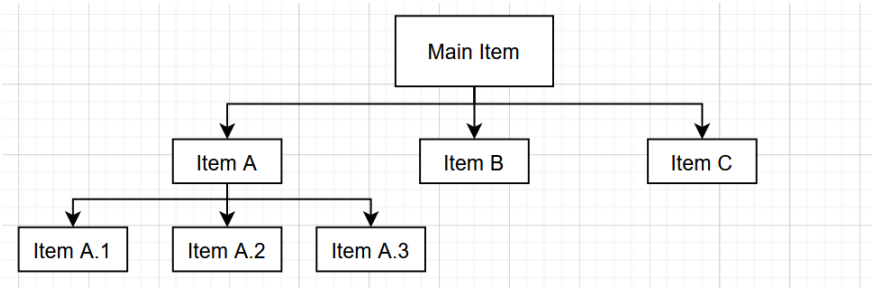


This direct association leads the way to new use cases such as:

- To produce standard steel parts to be kept in stock (e.g. clip angles, base plates…)
- Defining complex products within specific Customer (Fabrication) Orders, items build out from a combination of other complex products and in-house manufactured steel elements (without using "Import" overall workflow)

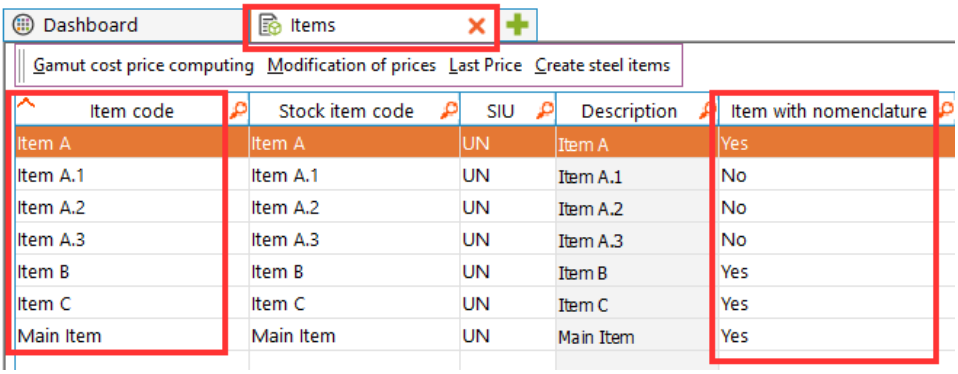
8. Item definition on multiple levels (item-in-item reference)

This feature streamlines production management of elements defined and made on multi-levels of production.
In order to have a better understanding, here is a basic schematic representation of what and how such an item can be defined.



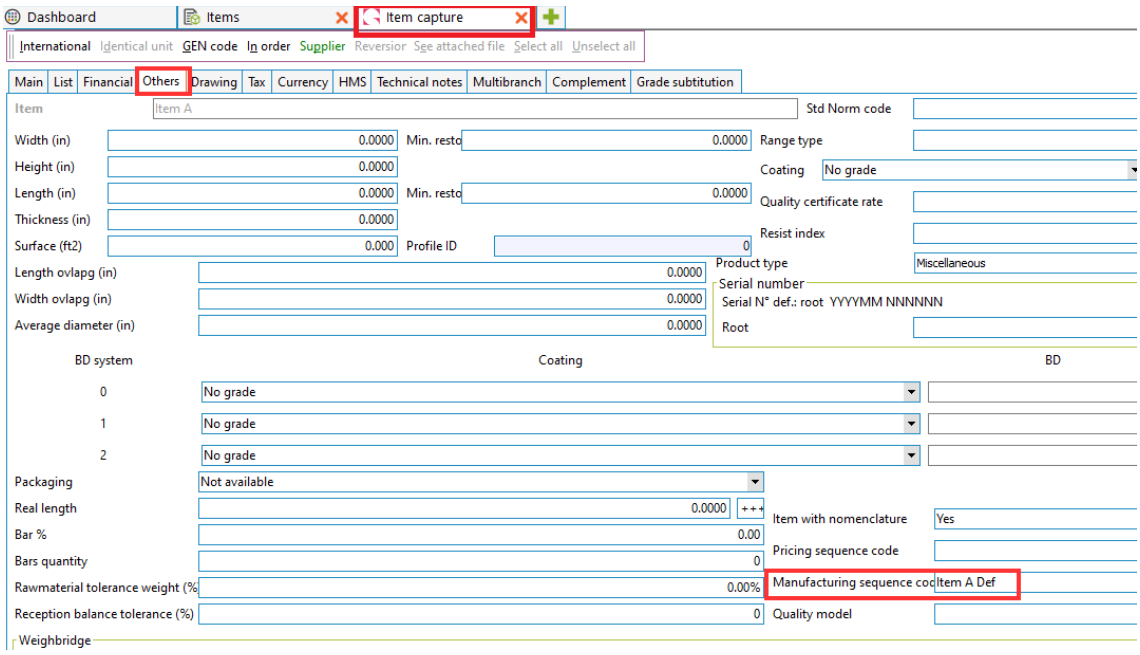
Once such product is defined ("Main item" in this example), it can be added to a production workflow and the algorithm is going to process automatically all the sub-items, operations and eventually raw materials from which these are made of.

How such a structure can be defined in Advance Workshop:
The first step is to create in the menu "1.10.4 Items" an Item for each component.

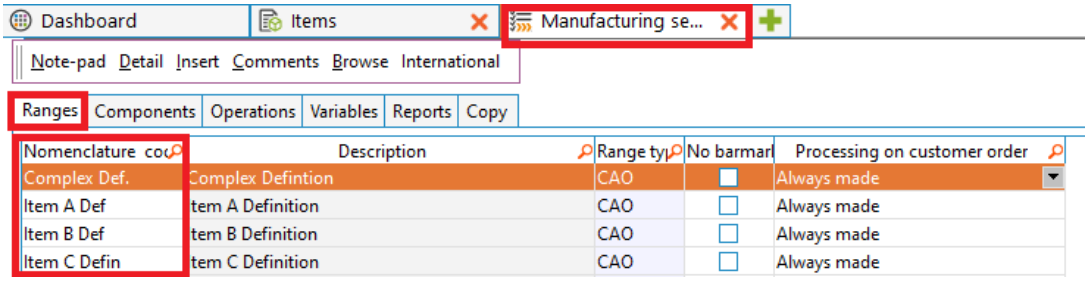


Item code	Stock item code	SIU	Description	Item with nomenclature
Item A	Item A	UN	Item A	Yes
Item A.1	Item A.1	UN	Item A.1	No
Item A.2	Item A.2	UN	Item A.2	No
Item A.3	Item A.3	UN	Item A.3	No
Item B	Item B	UN	Item B	Yes
Item C	Item C	UN	Item C	Yes
Main Item	Main Item	UN	Main Item	Yes

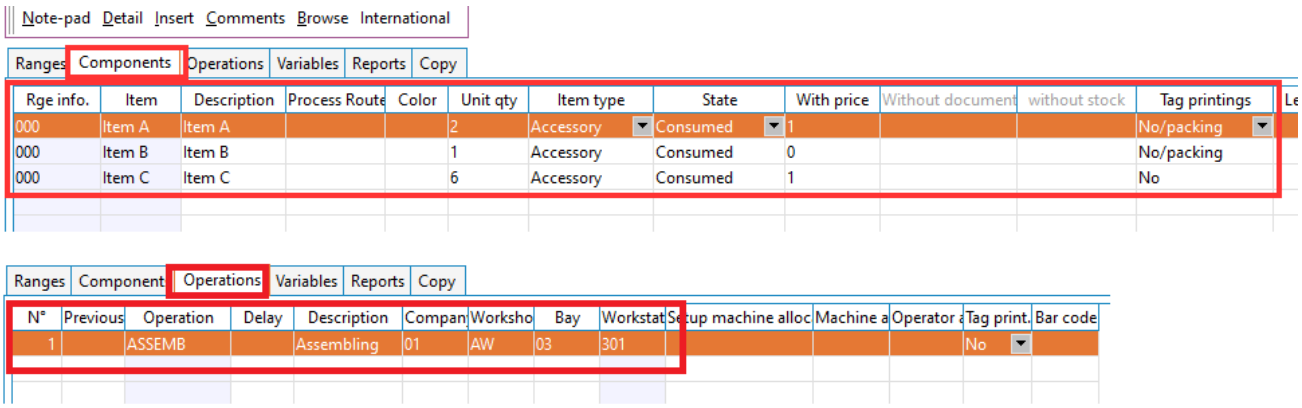
Then, if the item has sub-components within its definition, we need to assign a Manufacturing Sequence (or Nomenclature). This is done by opening each item's property pages, going to "Other" tab, activate and select a Manufacturing Sequence from bottom-right side of the page.



Since each Manufacturing Sequence is most likely to need to have unique structure, it's very possible creating in menu "1.13.3" individual Manufacturing Sequences for each product.
As example, for "Main item", the Manufacturing Sequence can look something like this:

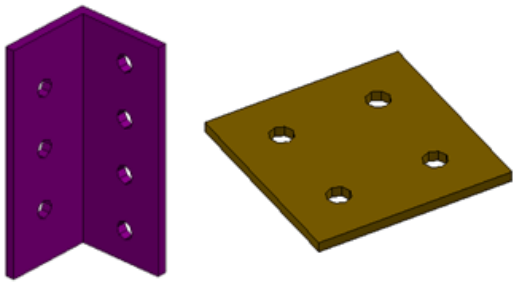


And for sub-component "Item A", the Manufacturing Sequence can be something like this:

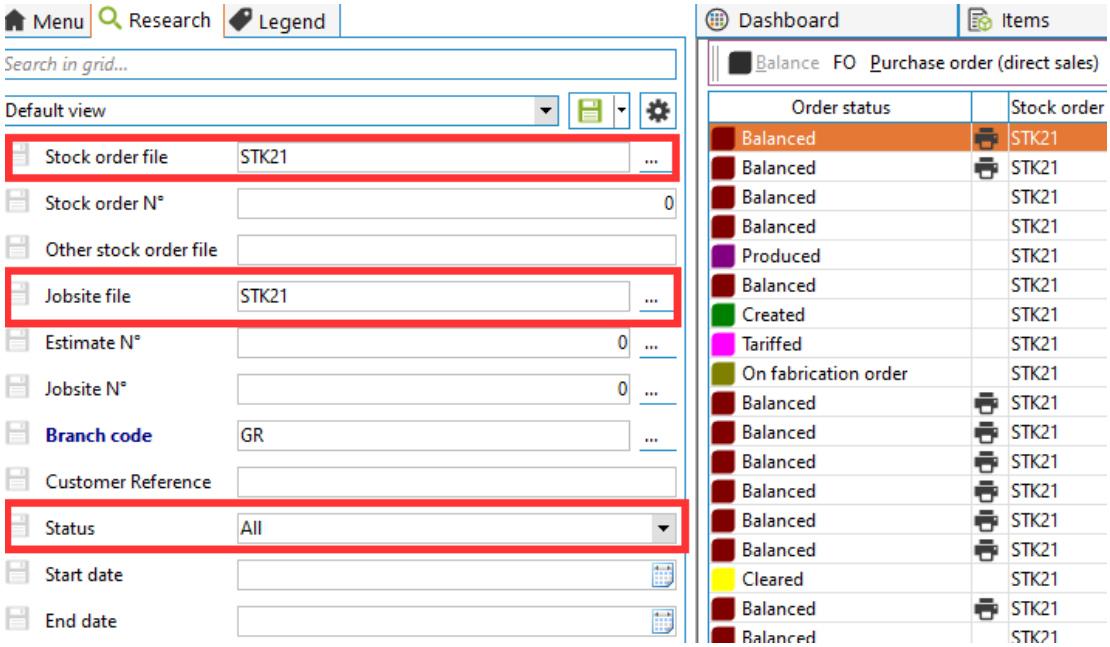


9. Produce for Stock

Either if we speak about standard steel elements, or more complex non-structural items, the same need is available, to have the product in stock and use it once an order is placed into fabrication.
Although most of the steel industry products are bespoke, sub-parts of the final products can be used more often, thus being produced, and kept in storage for later usage.
Here are common examples of such parts, like clip angles and base plates, but another type of elements can be in such category if we consider miscellaneous steel products like railings and stairs as products that pertain to such standardization.



The process steps required to produce for stock are similar to Customer Orders, but in this case, the order is going to be from another type, a Stock Order, and we have slight differences along the settings.
While for production orders originating from a direct customer request the workflow kicks off with the menu "9.3.1. Customer Orders", for internal production we are going to use the menu "7.1 Ordering for Stock".
As a first observation, it's important to set the right value on the left side filtering panel (Research menu) for the highlighted parameters, so that Stock Orders are listed on the main page, from the right side.



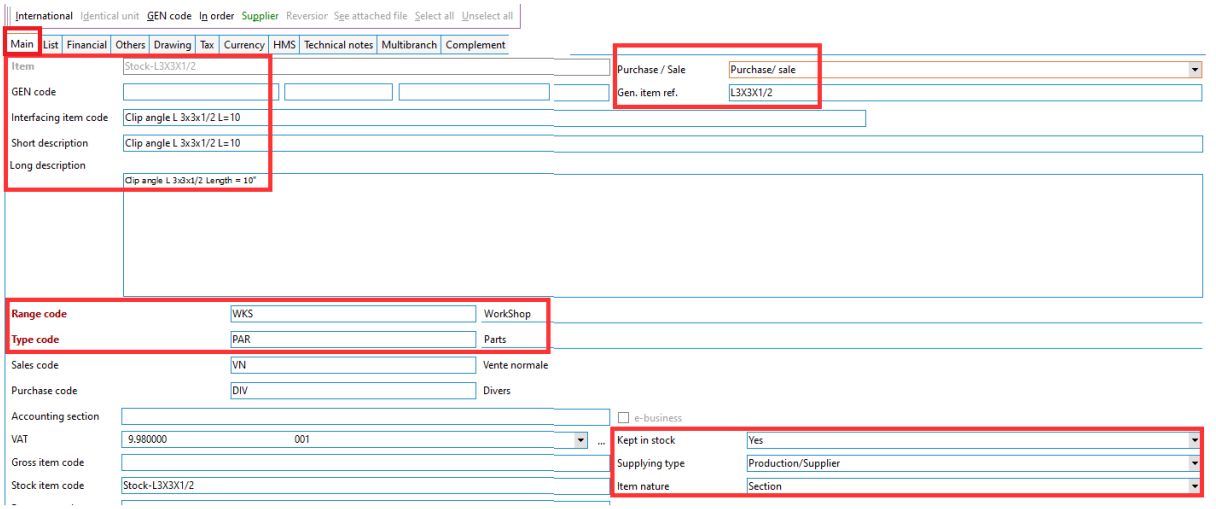
Before creating a Stock Order and proceeding to fabricate, let's spend some time to highlight the type of items and settings required in the system.

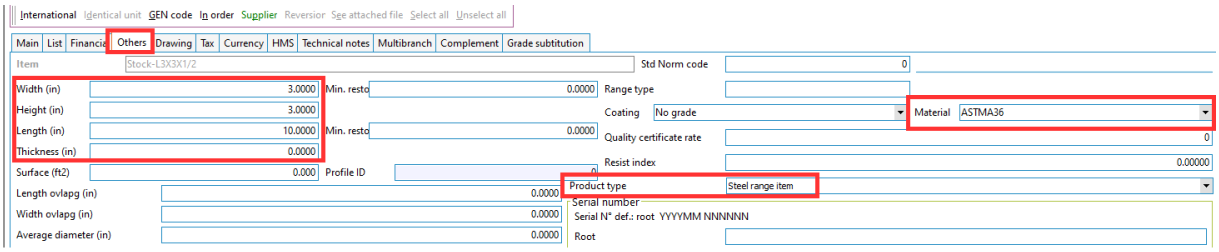
- Need to define the products kept in stock

- Define a "generic item" used in production
- Create and attach to this "generic item" dedicated Manufacturing Sequence

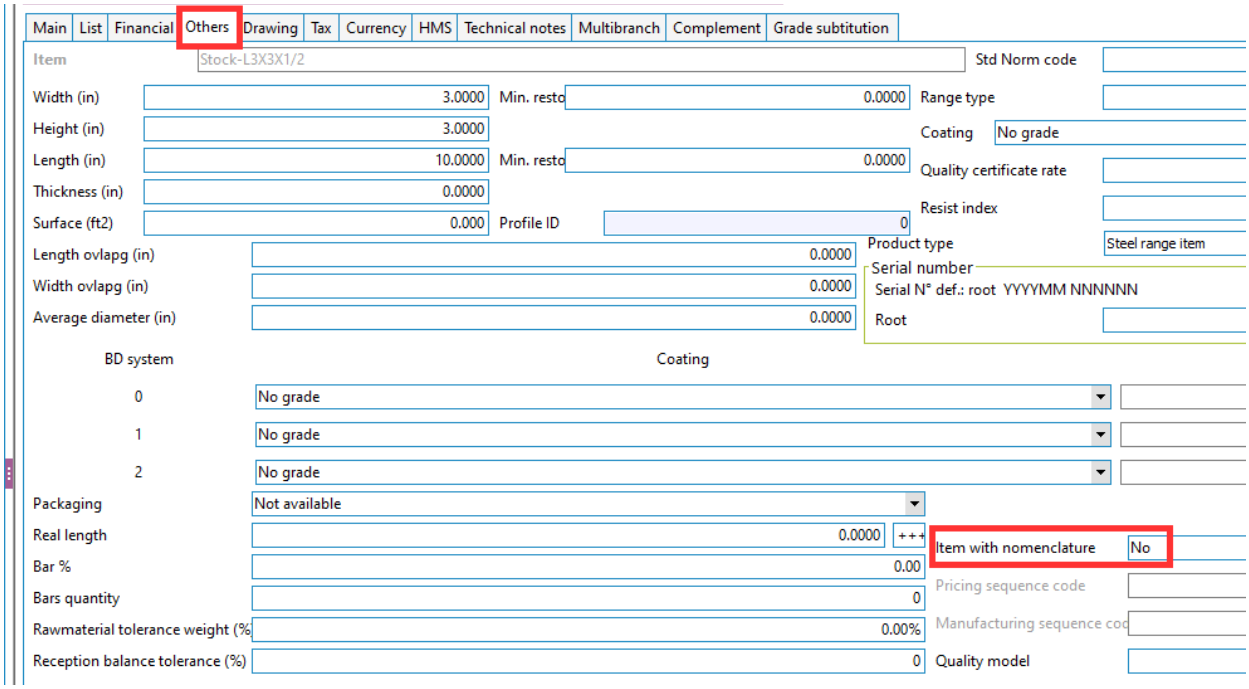
9.1. Defining products done for stocks

This is done from the menu "1.10.4 Items".
Here is a definition example for a steel part Clip angle L3X3X1/2 with 10" length. All fields in red need to be filled accordingly.

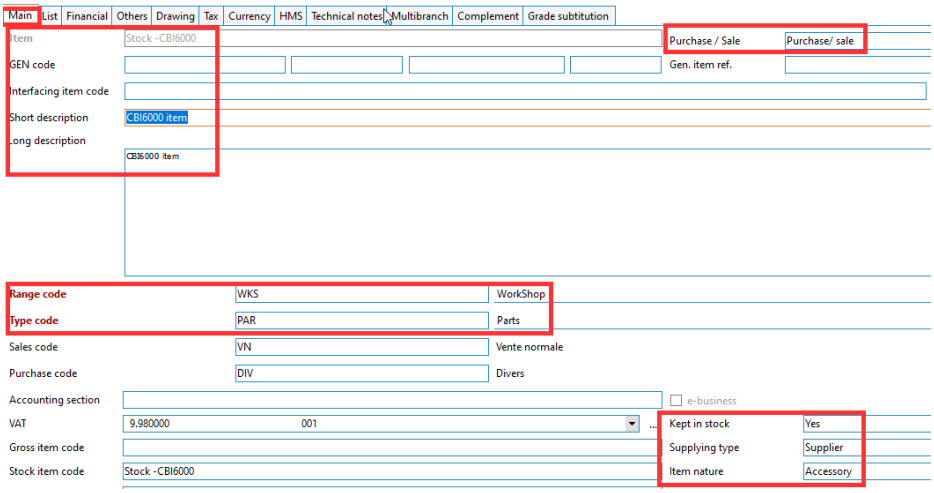




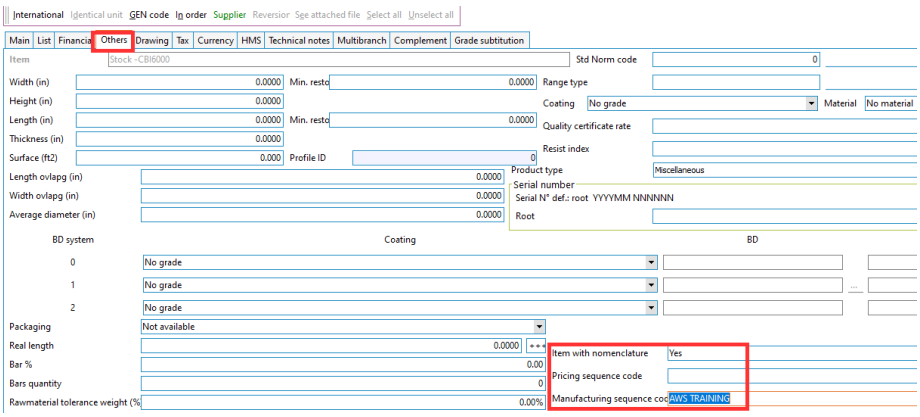
Please note that no Manufacturing Sequences need to be attached to these items.



For a Special Product (non-structural steel item) is recommended to use a similar definition, with the difference that "Item nature" should be set as "Accessory" and "Product Type" is no more important (thus it can remain as "Miscellaneous").

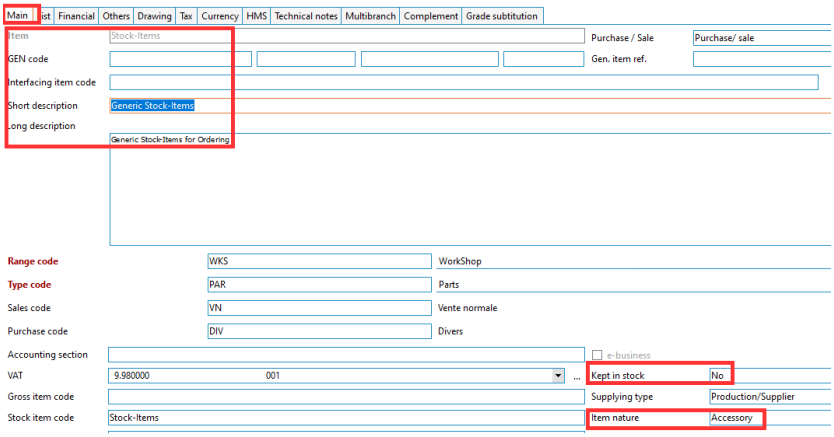


Since these types of products are usually build from multiple sub-components, you may want to attach a Manufacturing Sequence to this product, for the only purpose to catch the products components and retrieve this information automatically during manufacturing.

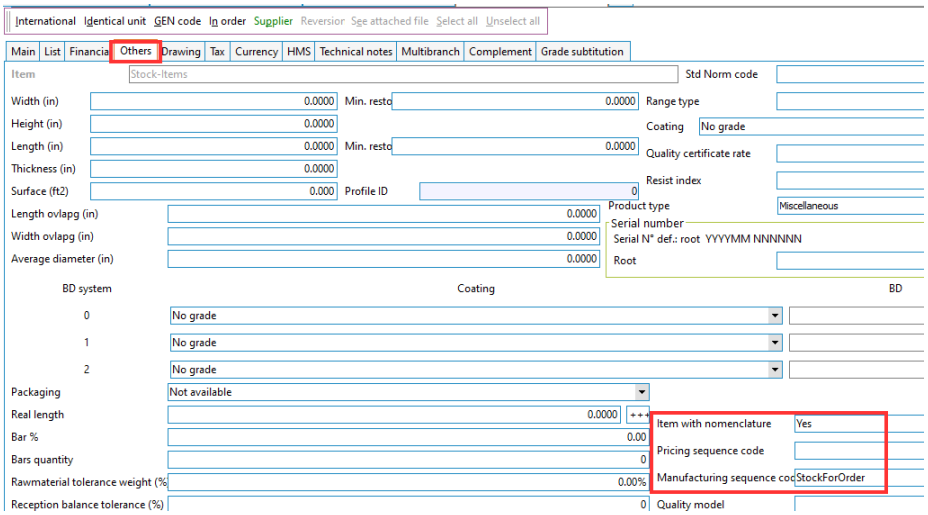


9.2. Defining the "generic item"

This item has the role to lead the production for stock, to offer flexibility and to aggregate various settings within its definition. Its definition is also initiated from menu "1.10.4 Items".



Specific Manufacturing Sequence needs to be assigned to this item; its definition being detailed in next paragraph.



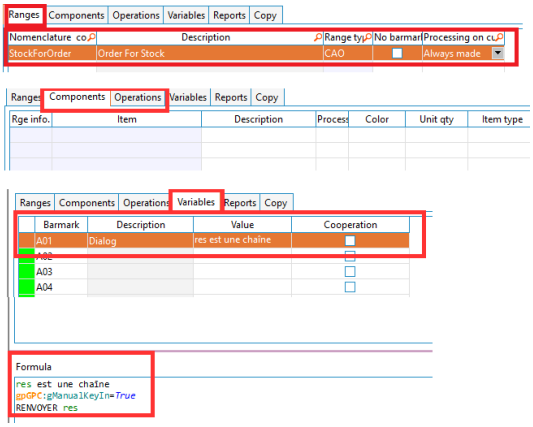
9.3. Defining Manufacturing Sequence for the "generic item"

We aim to have flexibility each time when we want to produce for Stock, thus the Manufacturing Sequence will allow to choose what items want to produce for each Stock Order.

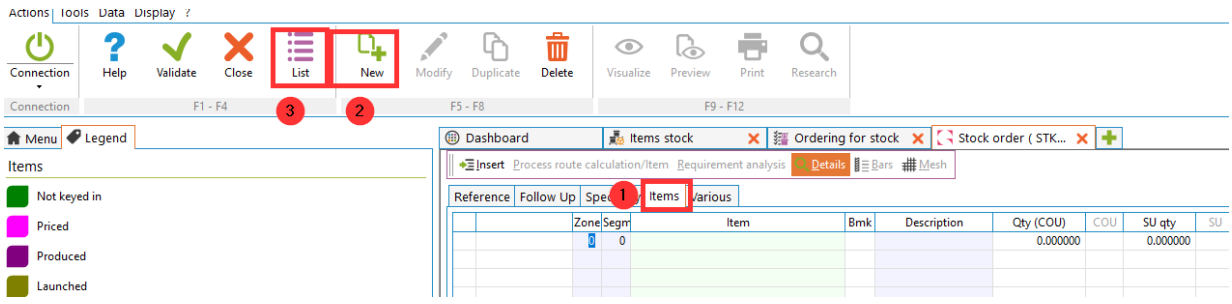
The following settings are recommended for this Manufacturing Sequence:

- no records for "Components" or "Operations" tabs
- a script was added to the "Variables" tab, to open the Manufacturing Sequence dialog during Stock Order process and allow choosing what items to produce.

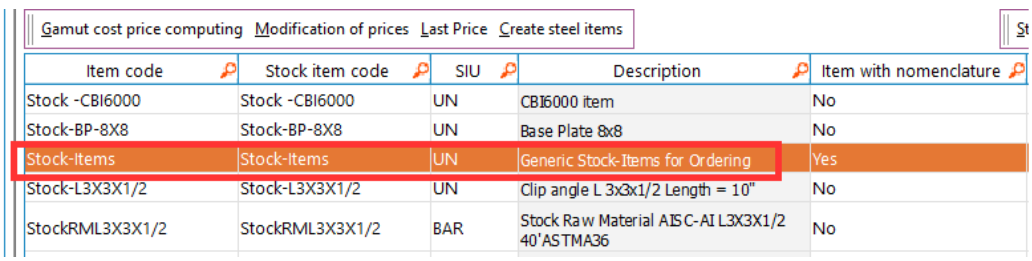
  Here you can find the script content:
  res est une chaîne
  gpGPC:gManualKeyIn=True
  RENVOYER res



Having no Components records allows us to set later (during Production) what items we want to produce.
The script will open this Manufacturing Sequence dialog during the Stock Order, allowing us to select what specific items we want to produce.
Going back to menu "7.1 Ordering for stock", an Order can now be created. Then open the order and add a new item by following the steps from the picture below:

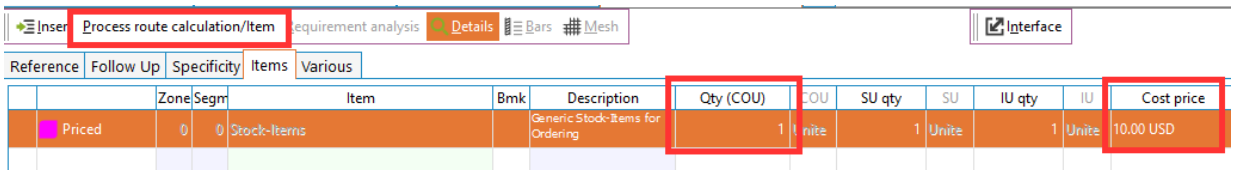


Once step 3 is done, the Item list is open, and need to choose the previously defined "generic item".

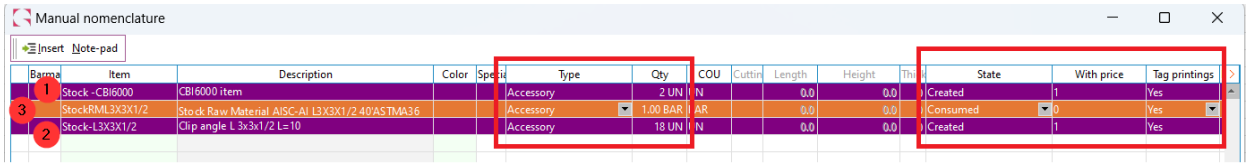


Item code	Stock item code	SIU	Description	Item with nomenclature
Stock -CBI6000	Stock -CBI6000	UN	CBI6000 item	No
Stock-BP-8X8	Stock-BP-8X8	UN	Base Plate 8x8	No
Stock-Items	Stock-Items	UN	Generic Stock-Items for Ordering	Yes
Stock-L3X3X1/2	Stock-L3X3X1/2	UN	Clip angle L 3x3x1/2 Length = 10"	No
StockRML3X3X1/2	StockRML3X3X1/2	BAR	Stock Raw Material AISC-AI L3X3X1/2 40'ASTMA36	No

Set a Quantity (usually this should be 1, since the qty of produced item it's declared at the next step), a Cost and run "Process route calculation/item".

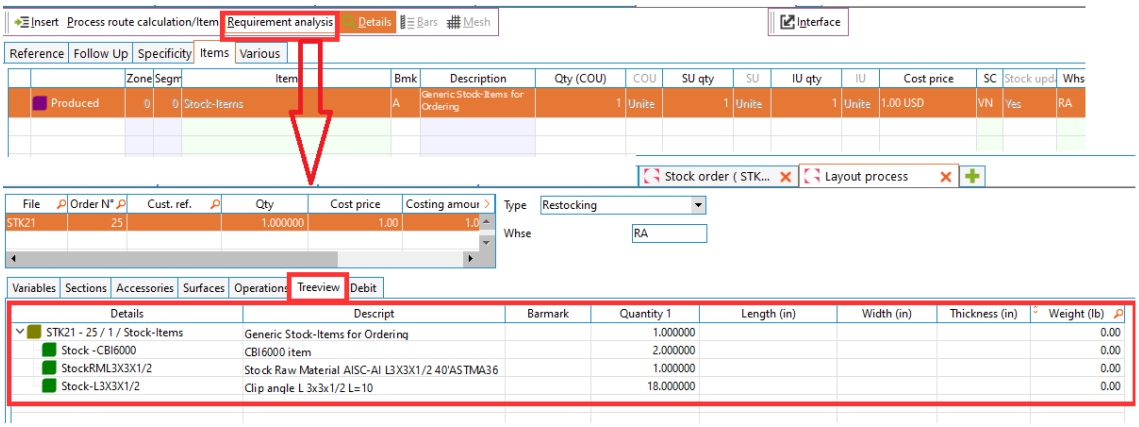


In the opened dialog, add the items that you want to produce for stock and raw material from which they are made from (if it's the case):

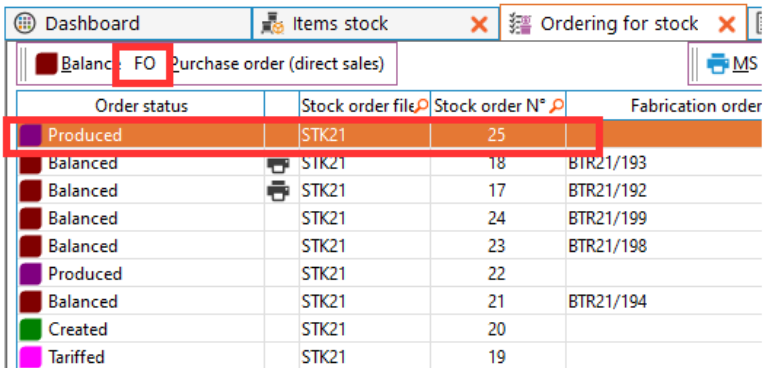


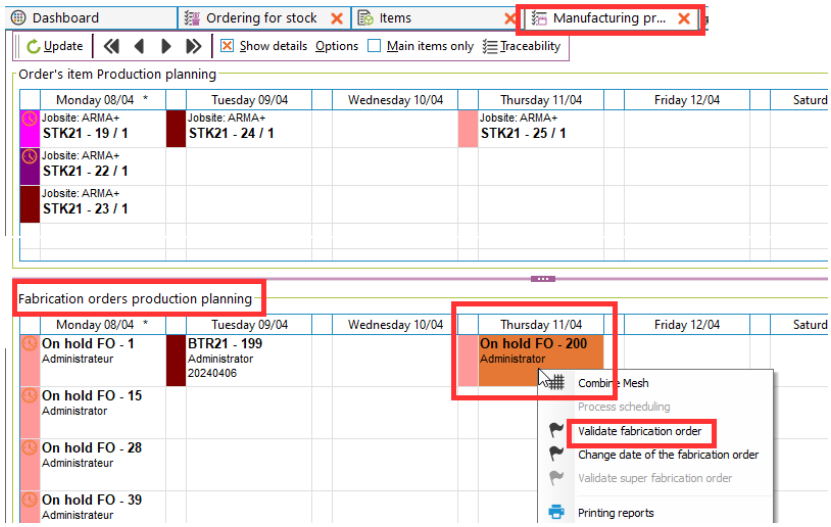
In this example, we've chose:
1: a Special Part item *Stock-CBI6000*
2: a standard steel Profile, as clip angle *Stock-L3X3X1/2*
3: the raw material that is consumed to create the Clip Angles from point 2, as *StockRML3X3X1/2*
Please note that the raw material consumed for manufacturing the steel Profiles needs to be estimated and declared separately, as there is not going to be any Nesting procedure available along this process.
The item settings are:

- "Type" needs to be Accessory for any item (including steel profiles or plates); this is mandatory, so that the process can run
- "Qty" represents the quantity that we want to produce or that is consumed (in case of raw material)
- "State" should be Created for produced items and Consumed for consumed items (like raw materials)
- "with Price" represents if the item price is considered (value "1") or not (value "0")
- "Tag printings" sets if we want to have tags are associated or not to the items
  The breakdown content of the order can be further check by using Requirement analysis option from inside the Order.

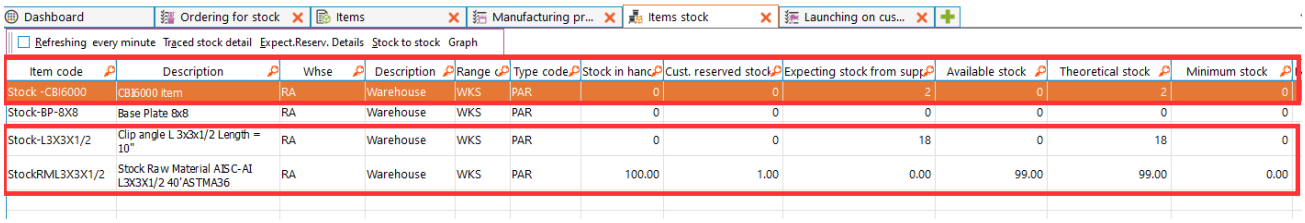


Once the Order for Stock has been created, the next step is to create a **Fabrication Order**. This can be done either from menu *7.1 Ordering for Stock*, either from menu *7.10 Manufacturing Production Planning* (same as for a Customer Order).
The next step is to "Validate" the Fabrication Order, using the same menu *7.10 Manufacturing Production planning.*

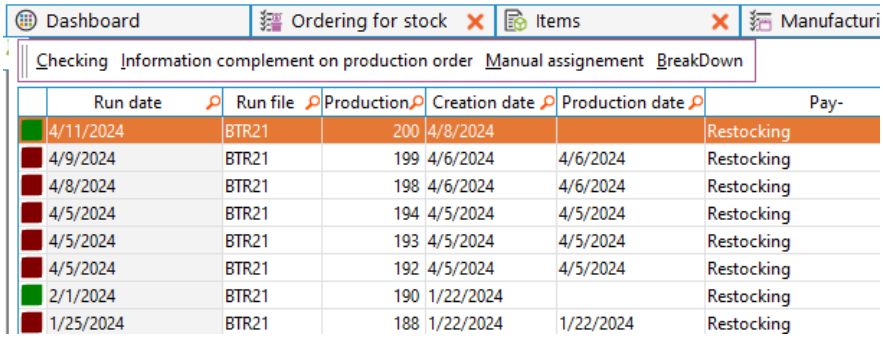




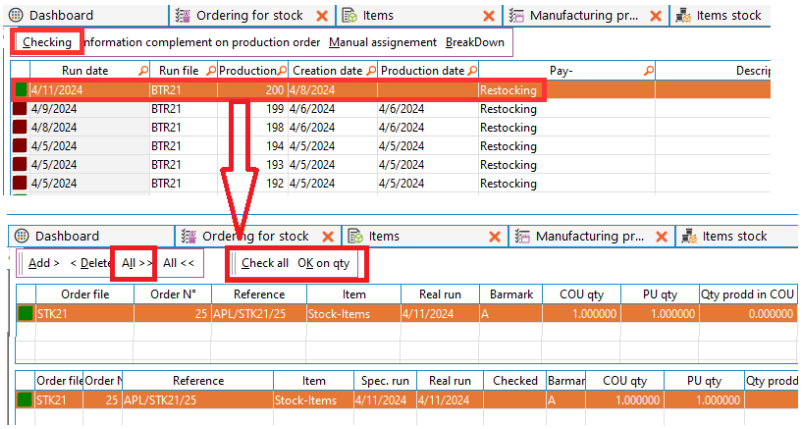
From this point on, the stock starts to register data, about expected, theoretical stock and so on. As the Fabrication Order progresses, the quantities will move (updated) according to their status. The status can be traced from menu *11.1.1 Items stock*:



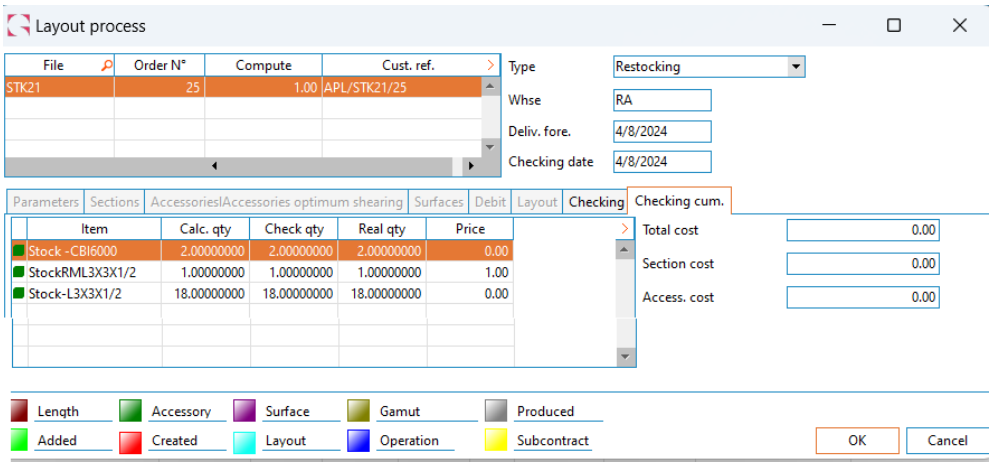
Once the Fabrication Order is validated, this will be available also on menu "7.2 Launching on Customer Order". Here is a snapshot of this menu list, each line representing such a Fabrication Order.



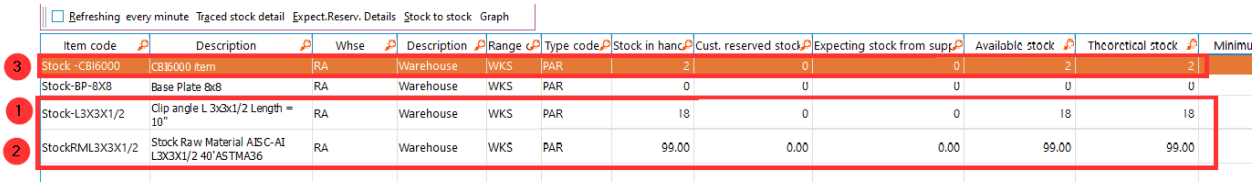
Select the Fabrication Order, press "Checking" and continue with the steps as they are in the next picture:



Press "OK" on next dialog.



At this point, the Production for Stock has finished, the Stock Order gets the status *Balanced* and the Stock Items page is updated with the quantities. Produced quantities are now under "Stock in hand" and all other stock columns have been updated accordingly.



1: the steel Profile produced for stock (clip angle L3X3X1/2 with 10" Length)
2: the raw material consumed to create the Clip Angles from point 1
3: the Special Part item produced for Stock

To summarize the Stock Order outcomes:

- 2pcs of Special Part items *"Stock -CBI6000"* are now *"Stock in hand"*
- 18pcs of standard steel profiles Clip angle *"Stock-L3X3X1/2"* are now *"Stock in hand"*
- 99pcs as raw material *"StockRML3X3X1/2"* are now as *"Stock in hand"*, 1 pcs being consumed to produce the 18pcs clip angles

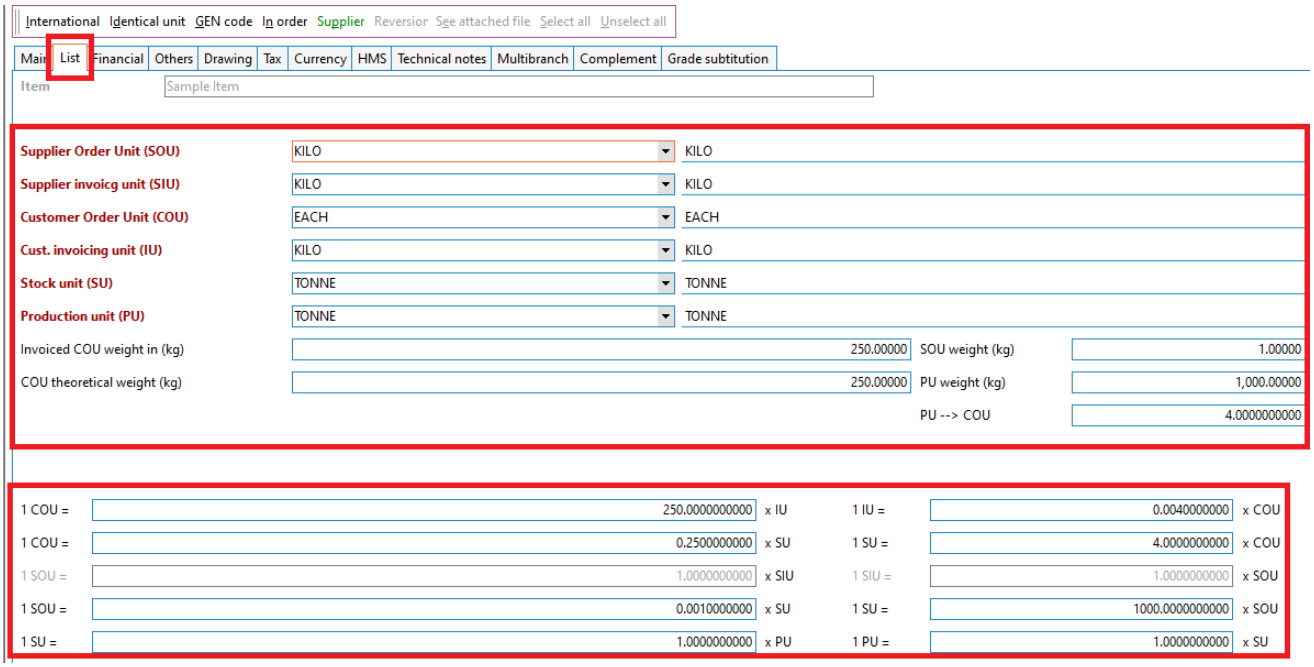
Please note that for Special Part products (like "*Stock-CBI6000*") that are built from multiple components, which are also made from multiple components (this multilevel could continuing

further), the stocks quantities for each component should be updated accordingly for all sub-items part of this definition chain.

10. Managing different units for items

Some items are managed differently along their production path. Sometimes they are acquired as individual quantities, internally managed as bulk (e.g. weight units), and sold down the line as a different stock unit.
The management of such items has been consistently improved, providing more flexibility and correct conversion between units and actions (e.g. storage transfers).

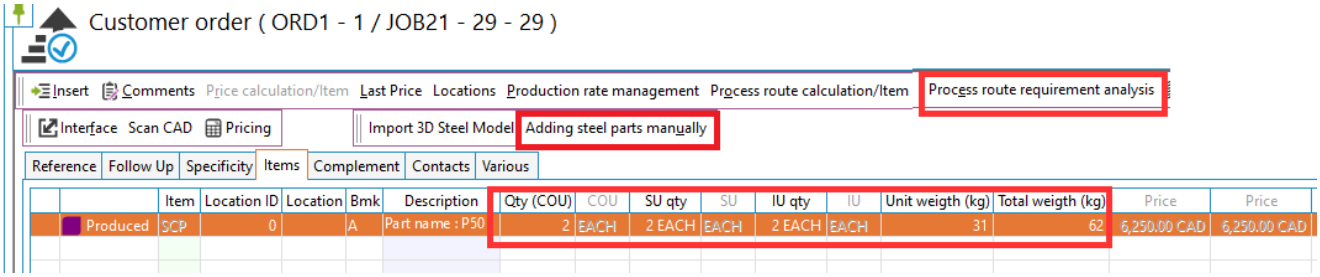
Let's consider a product set with different units and see its behavior.
An item with different units is defined as in the picture below:



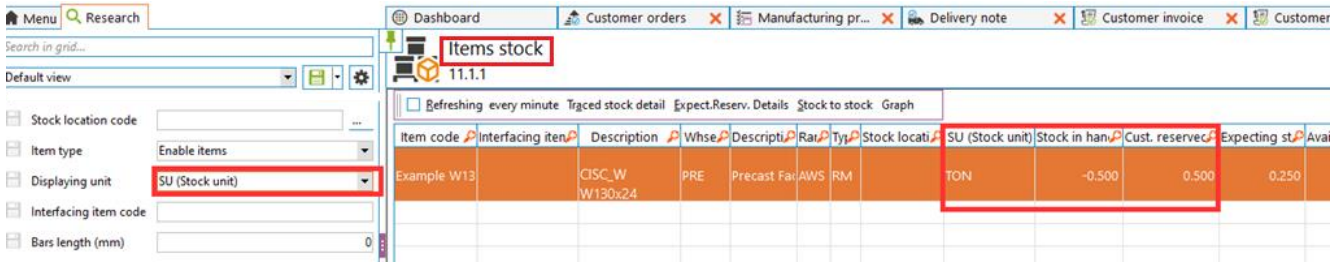
Note:

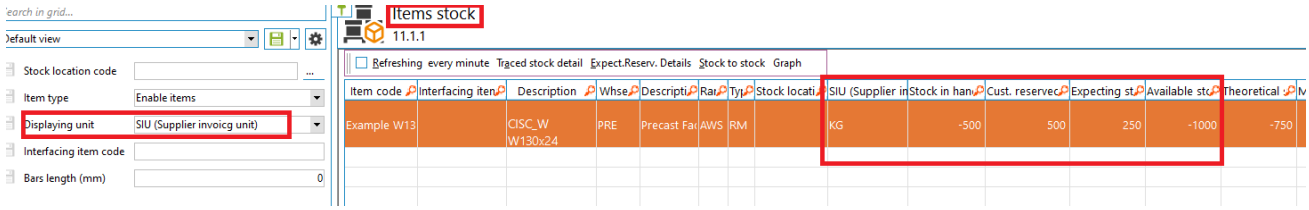
- Customer order unit (COU) needs to be always set as EACH.
- It's required to fill the unit conversion factors (if that's the case) for all non-mandatory fields (non-red color fields)

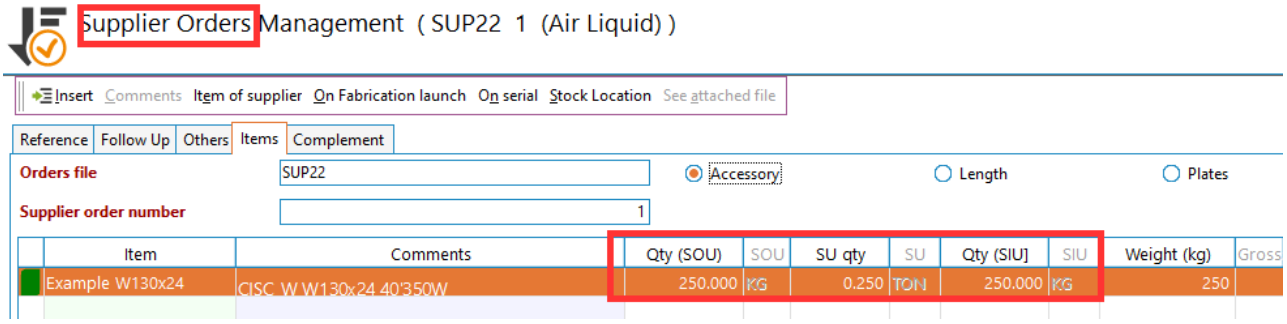
Once such an element is added to a Customer Order, using the "Adding steel part manually" functionality or any other Import 3D Steel method, the units set to the item definition will be used accordingly, along the production steps.



Here is how "Stock" and "Supplier Order" records are tracked according to item unit settings:



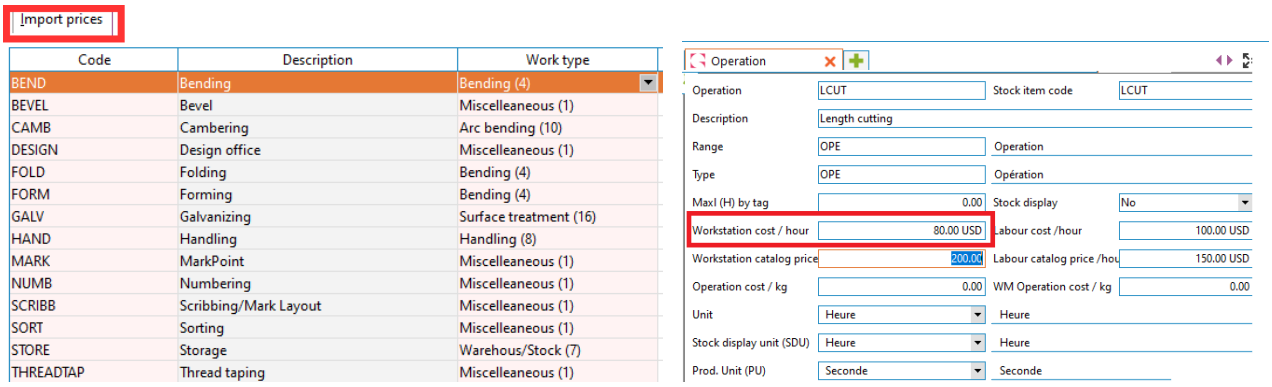




11. Set operation prices according to multiple criteria

This implementation extends the current capabilities regarding internal operation costs, one of the most important parameters involved in the overall production costs. With this version, we bring a new and user-friendly way to define operations cost according to customer name or type, operation properties (e.g. straight or slanted cut, diameters), workstation, and many others.
It also worths mentioning that the current implementation paves the road to include any other type of parameters as parameters to define operation costs.
The file format that allows the price configuration is excel, a very common format, easy to manipulate and very suitable to organize such information.
If we go to the menu "1.12.2 Operations", we are going to notice a new button called "Import prices". This will open a dialog and prompt about selecting an Excel file template from where prices should be imported. As the following picture highlights, these new prices are going to be considered instead of the "Workstation cost/hour" dialog cell, only when the Excel records are found as valid. In all other cases, the value shown in UI is still the one used.
Important to note:

- the value present in the UI dialog is not going to be replaced by the import, since it still may make sense for some situations (excel conditions are not exhaustive).
- Excel values are imported in the back-end of the system; any change done in the Excel file afterwards, requires to import again the Excel file



The excel file template requires a specific layout, with specific column names, so that the system to identify the parameter's meaning. Here are the column's names, together with instructions about what data and how they should be filled-in:

Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value

- *Operation_Code* – code operation from menu "1.12.2. Operations" (mandatory input)
- *Operation_Price_per_Hour* – custom operation price, per hour (mandatory input)
- *Range_Code* – from the menu "1.6.2. Ranges/types of items" (optional input)
- *Range_Type_Code* – from the menu "1.6.2. Ranges/types of items" (optional input)
- ("Range_Code" and "Range_Type_Code" need being simultaneously set)
- *Market_Segment_Code* – as defined in menu "1.11.4 Market segments" (optional input)
- *Parameter_Category* – value from a "predefined parameter category" list (optional input)
- *Parameter_Name* – value from a "predefined parameters" list (optional input)
- *Parameter_Value* – the fixed value of the parameter, when criteria to consider for the price requires like that (optional input)
- (example: Parameter Category = "Customer", Parameter Name = "LSGroup" => Parameter Value = "Group3")
- *Parameter_Min_Value* – minimum value to be used for parameters that require an interval, working together parameter max (optional input)

- *Parameter_Max_Value* – maximum value to be used for parameters that require an interval, working together parameter min (optional input)
- (example: Parameter Category = "Operation", Parameter Name = "CutAngle" => Parameter Min Value = "0" and Parameter Max Value = "30" degrees)
- ("*Parameter_Category*", "*Parameter_Name*", "*Parameter_Value*" or "*Parameter_Min_Value*" and "*Parameter_Max_Value*" need being simultaneously set)

11.1. Predefined parameter categories

The following Categories are currently available to be set in the Excel file:

- *"Customer"*
- *"Operation"*
- *"Element"*
- *"Workstation"*

11.2. Predefined parameters

For the "*Customer*" category, the following parameters are available:

- "*Code*" – requires a code from menu "1.10.5 Customers" in "*Parameter_Value*" column
- "*LSGroup*" – requires a code from menu "1.11.8 Pricing group" in "*Parameter_Value*" column

For "*Operation*" category, the following parameters are available:

- "*CutAngle*" – used with "LCUT" operation; it can be fixed value or interval (min-max values)
- "*Diameter*" – used with "DRILL" or "PCUT"; it can be fixed value or interval (min-max values)

For "*Element*" category, the following parameters are available:

- "*NoOfHoles*"– number of holes on the part; it can be fixed value or interval (min-max values)
- "*NoOfCuts*" – number of cuts on the part; it can be a fixed value or interval (min-max values)
- "*Weight*" – weight of the part; it can be a fixed value or interval (min-max values)

For "*Workstation*" category, the following parameters are available:

- "*Code*"–requires a code from menu "1.12.6 Physical working position" in "*Parameter_Value*" column
- "*Time*" – time needed to produce an operation on the workstation; it can be a fixed value or interval (min-max values)

Examples of usage for pricing criteria using the excel template

Setting a price for a certain Range of items will need to include all the types contained in that range

	A	B	C	D	E	F	G	H	I	J
1	Operation Code	OperationPrice per hour	Range Code	Range Type Code	Market Segment Code	Parameter Category	Parameter Name	Parameter Value	Parameter Min Value	Parameter Max Value
2	LCUT	2	C0	C0						
3	LCUT	2	C0	IPN						
4	LCUT	2	C0	UPE						
5	LCUT	2	C0	UPN						
6										

Setting a price for a certain Range type

	A	B	C	D	E	F	G	H	I	J
1	Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value
2	LCUT	2	C0	C0						
3										

Setting a price for a certain customer

	A	B	C	D	E	F	G	H	I	J
1	Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value
2	LCUT	2				Customer	Code	2F PRODUCTI		
3										

Setting a price for a certain machine/workstation

Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value
LCUT	2				Workstation	Code	001		

Setting a price for LCUT depending on whether the cut is straight or not

Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value	
LCUT	2				Operation	CutAngle	0			straight cut
LCUT	4				Operation	CutAngle		1	89	angled cut

Setting the same price for the same Range type, but for multiple customers

Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value
LCUT	2	C0	C0		Customer	Code	2F PRODUCTI		
LCUT	2	C0	C0		Customer	Code	A C M E		
LCUT	2	C0	C0		Customer	Code	ARTISANS PL		
LCUT	2	C0	C0		Customer	Code	AZEVEDO		

Setting a price based on Market segment, range type, hole diameter and part weight

Operation_Code	Operation_Price_per_hour	Range_Code	Range_Type_Code	Market_Segment_Code	Parameter_Category	Parameter_Name	Parameter_Value	Parameter_Min_Value	Parameter_Max_Value	
DRILL	2	C0	C0	0	Operation	Diameter		10	30	DRILL price is 2 for holes between 10 and 30 in
					Element	Weight		10	500	diameter and the part weight between 10 and 500
DRILL	4	C0	C0	0	Operation	Diameter		30	50	DRILL price is 4 for holes between 30 and 60 in
					Element	Weight		500	1000	diameter and the part weight between 500 and 1000

11.3. Final Remarks:

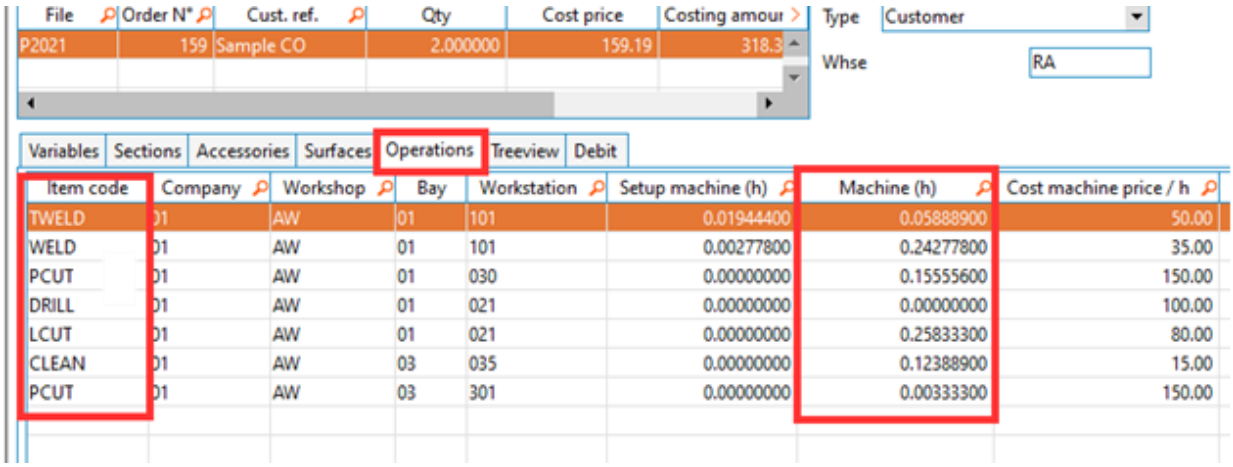
- "*Range_Code*", "*Range_Type_Code*" and "*Market_Segment_Code*" may be set only on the first line an operation, if there are multiple parameters that the user wants to consider as criteria for price
- (they can be added to each line of the operation, but they need to be the same)
- definition of a price criteria ends when the next line contains an "*Operation_Code*" and a "*Operation_Price_per_hour*"
- we can have as many lines as we want for the parameters between two consecutive "*Operation_Code*" and a "*Operation_Price_per_hour*", but every criterion defined for each line must be met in order to use that price (all the conditions need to be accomplished simultaneously)

12. Workstations (machines) operation times improvements

The estimated times spend during Machine or Workstation operations provide more accurate results, due to an overhaul process of all the formulas that are in back-end of these operations.

The influence of these enhancements can be noticed for Quotations and Customer Orders estimate times.

The easiest way to notice this is to access "Pricing requirement analysis" option and go to "Operations" tab, but these operation times changes are obviously noticeable inside reports or any other place.



File	Order N°	Cust. ref.	Qty	Cost price	Costing amour
P2021	159	Sample CO	2.000000	159.19	318.3

Type: Customer
Whse: RA

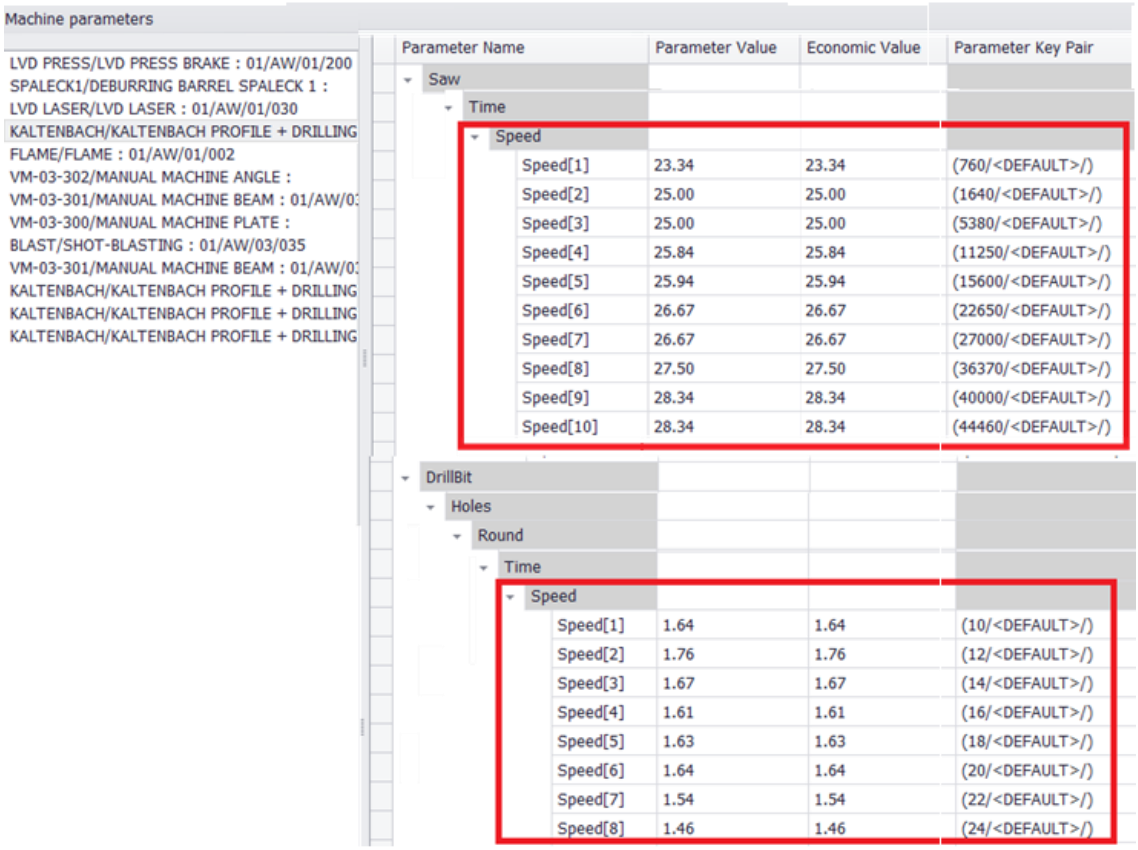
Variables | Sections | Accessories | Surfaces | Operations | Treeview | Debit

Item code	Company	Workshop	Bay	Workstation	Setup machine (h)	Machine (h)	Cost machine price / h
TWELD	01	AW	01	101	0.01944400	0.05888900	50.00
WELD	01	AW	01	101	0.00277800	0.24277800	35.00
PCUT	01	AW	01	030	0.00000000	0.15555600	150.00
DRILL	01	AW	01	021	0.00000000	0.00000000	100.00
LCUT	01	AW	01	021	0.00000000	0.25833300	80.00
CLEAN	01	AW	03	035	0.00000000	0.12388900	15.00
PCUT	01	AW	03	301	0.00000000	0.00333300	150.00

HALL_CODE	Workstatio...	Workstation	Machine	Time	Cost	Weight	Quantity
01							
01	002	FLAME	FLAME	15:45 min.	65.63 USD	1,500.24 lb	5 pcs
01	021	PROFILE	KALTENBACH	1:53:25 hrs.	340.75 USD	6,677.04 lb	5 pcs
01	100	WELDING#1		-	0.00 USD	0.00 lb	0 pcs
01	101	WELDING#2		1:40:50 hrs.	0.00 USD	0.00 lb	5 pcs
01	200	PRESS	LVD PRESS	-	0.00 USD	0.00 lb	0 pcs
01	030	LVD	LVD LASER	46:05 min.	192.01 USD	143.19 lb	22 pcs
01	400	PAINT		-	0.00 USD	0.00 lb	0 pcs
01	999	Galv		-	0.00 USD	0.00 lb	0 pcs
03							
03	035	CLEAN	BLAST	17:25 min.	4.35 USD	6,677.04 lb	5 pcs
03	301	VM-03-301	VM-03-301	-	0.00 USD	0.00 lb	0 pcs

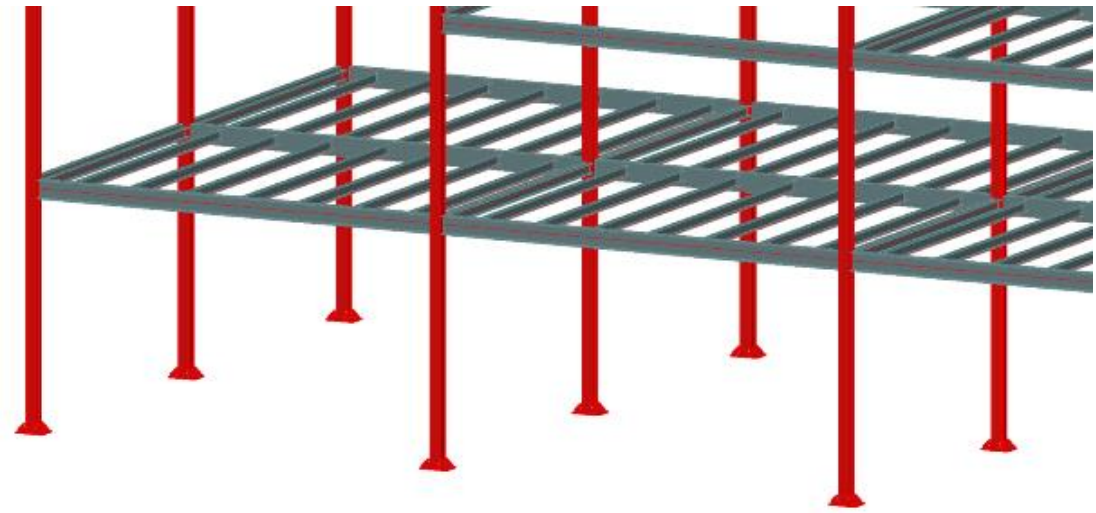
The manufacturing machines, that are set-up from menu "1.12.12 Machines", are also directly impacted by these changes, firstly by better coverage of the supported operations and secondly, by

the estimated operation times used along the manufacturing process. Together with quantities, the times are the cornerstones of the overall estimated costs and prices summarized in the final project reporting.

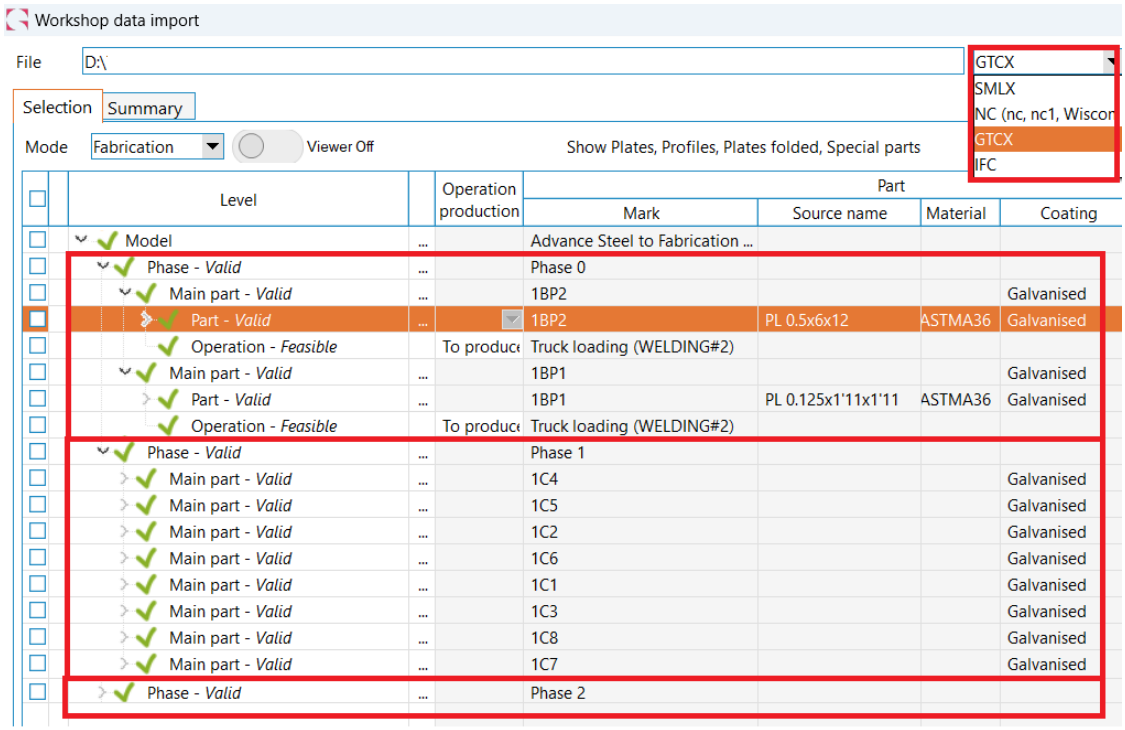


13. Construction Phasing Import

Either is known as "Phase", "Lot" or any other similar name, this property means the same thing: a process that divides a construction project into distinct stages that are executed sequentially. It represents a common approach for complex projects since it provides a better management, resource coordination, and scheduling.
The current version of Advance Workshop 2025 comes with a comprehensive solution for this problem, ensuring that all the current file formats (smlx, NC, gtcx) and the project's structure (assemblies, parts) are compatible in transferring this important information down the line to the production and job site.



(3D model example – highlights phases)



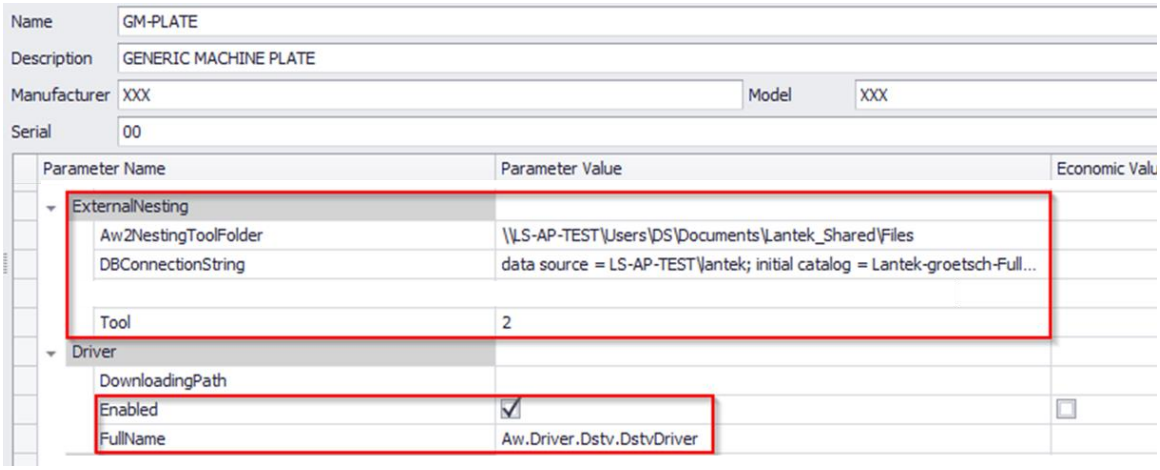
14. External nesting links (Lantek)*

This version extends the number of nesting external software that Advance Workshop is capable of communicating with, by adding also Lantek to this list. This represents a 2D nesting solution used by manufacturers worldwide due to its capabilities.
The transfer is very simple and intuitive:
Advance Workshop place required information about the elements to be nested (plates) into a shared folder
Lantek retrieves this information from the shared folder, it runs the nesting, and places the result in the same folder.
Advance Workshop gets back and centralize the entire nesting information, together with its remnants.

Here are the configurations required:

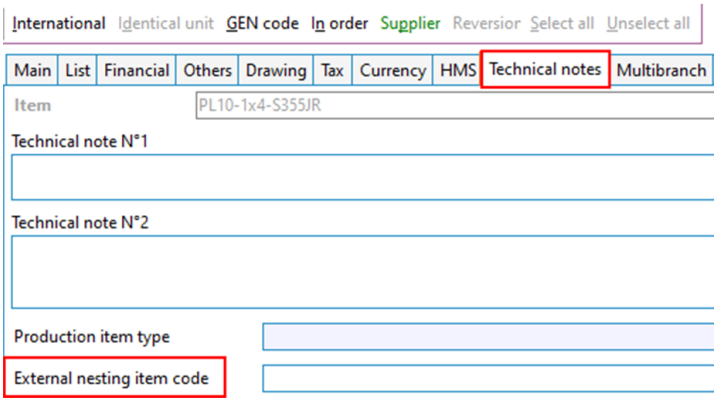
For **Advance Workshop machine**:

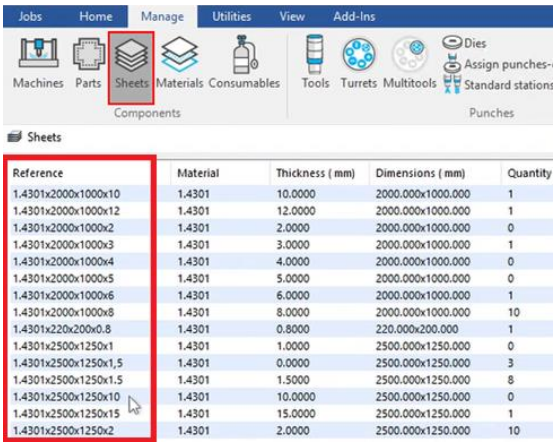
- set the AW2NestigToolFolder path to the shared folder where NC data will be exchanged
- set the DBConnectionString to the location of the database.
- configure the "Tool" parameter with the value "2" (specific to Lantek)
- enable the driver and specify a full name for it



For **Advance Workshop items**:

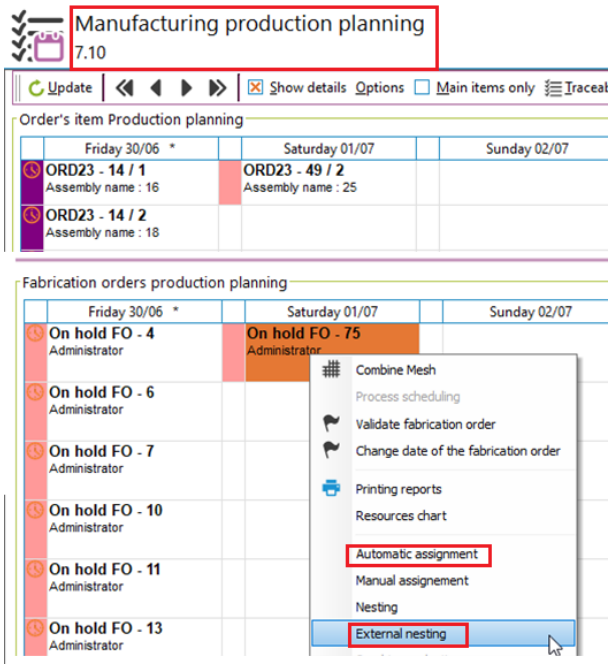
- items used as raw material (plate sheets) from Advance Workshop, need to have same "External nesting item code" as their Lantek correspondent sheets



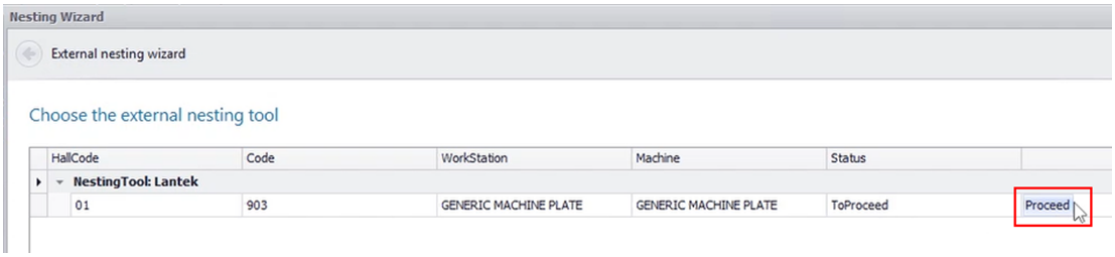


As **workflow steps**:

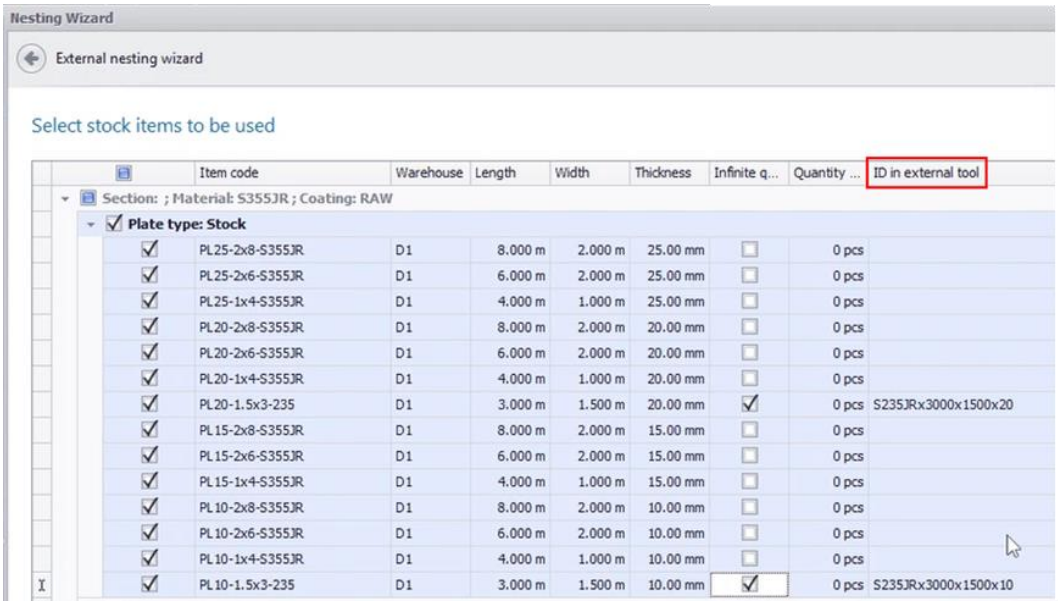
- go to menu "7.10 Manufacturing production planning", run first "Automatic assignment" and then "External nesting"



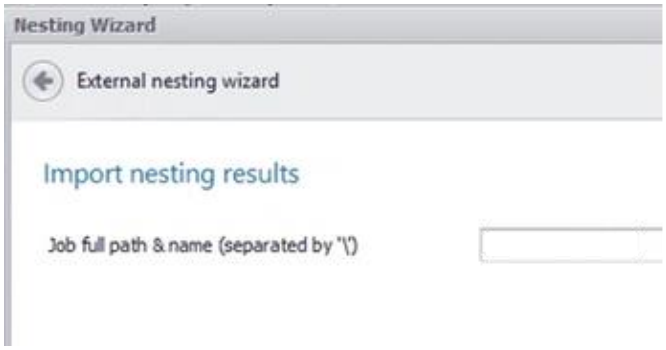
- the following dialog appears, and it requires to hit "Proceed" to move forward:



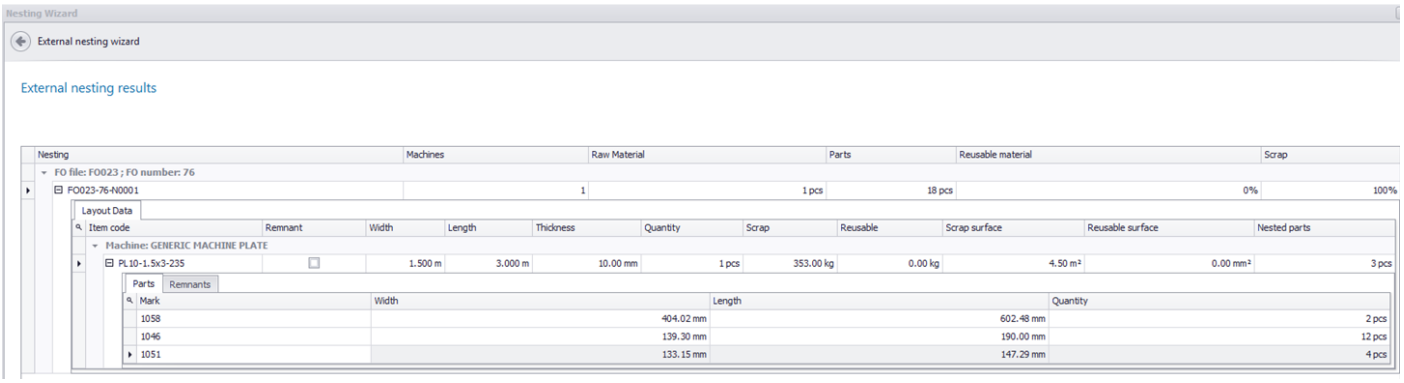
If the Advance Workshop items are set up correctly, the information will be displayed "ID in external tool".



The information is pushed at this point to the shared folder and the nesting continues in Lantek software.
After the nesting process is finished, the project's needs is required to be saved, in order to send data back.



The nesting results should be displayed as follows:

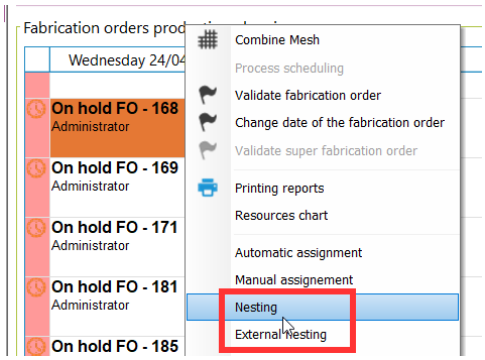


15. Report Templates

New report templates have been added as part of out-of-the-box version.
Although reporting will be constant subject to customization and adjustments, these reports provide useful content required to track production data. Let's get through each of these new reports and check what information is being brought by each of them.

15.1. Material Requisition list

This report is available at Fabrication Order level (menu "7.10 Manufacturing production planning").
The information provided is about the required raw materials within the Fabrication Order. Although the report provides meaningful results with or without a Nesting process run upfront, it's highly recommended to do so, in order to have listed quantities related to real production info.



Material Requisition List

Shop copy
Graitec France
Job Number : **BTR21-156**

Date : 4/22/2024
Time : 11:09:16 AM

Sold To GRAITEC
17 Burospace
BIÈVRES, 91572

Ship To GRAITEC
17 Burospace
BIÈVRES, 91572

Order No : P2021-144	**Dated :** 10/6/2023	**Quote No :** 0	
Customer : GRAITEC		**PO Num :** APL/P2021/144	
Ship Via :		**Priority :** 0	
Part Number :		**Product Code :** Steel connection	
Description :			
Drawing Number :		**Revision :**	**Dated :**
Start Date : 10/9/2023	**Finished Date :** 4/22/2024	**Master Job No** P2021-149	
Contact :		**Phone :**	
		Fax :	
Total Qty Open : 57	**Qty Posted :** 0	**Qty To Make :** 57	

Item		Quantity	Unit	Amount
Profiles				
PL3/8"-4x8	PL3/8"-4x8 A STMA36	6.000	UN	6.00
PL5/16"-4x8	PL5/16"-4x8 ASTMA36	71.000	UN	71.00
PL1/4"-4x8	PL1/4"-4x8 A STMA36	7.000	UN	7.00
PL2"-5x10	PL2"-5x10 ASTMA36	9.000	UN	9.00
PL1/8"-5x10	PL1/8"-5x10 ASTMA36	8.000	UN	8.00
PL1/2"-4x8	PL1/2"-4x8 A STMA36	2.000	UN	2.00
PL3/4"-4x8	PL3/4"-4x8 A STMA36	1.000	UN	1.00
Plates				
AISC-WT-00240	AISC-WT WT8X13 40'ASTMA992	16.000	BAR	16.00
AISC-W-00140	AISC-W W24x117 40"ASTMA992	1.000	BAR	1.00
AISC-HSS-SQ-013	AISC-HSS-SQ HSS 14X14X1/2 40'ASTMA500GRB	9.000	BAR	9.00
AISC-W-00032	AISC-W W12x26 40"ASTMA992	13.000	BAR	13.00
AISC-W-00046	AISC-W W12x87 40"ASTMA992	7.000	BAR	7.00

15.2. Job Traveler list

This type of report defines the general requirements for the job traveler needed to list all actions demanded for a fabrication order while defining the critical path and estimated times by workstation.

It's available at the Fabrication Order level (menu "7.10 Manufacturing production planning").

Job Traveler

Shop copy

Graitec France

Job Number : **P2021-162**

Date : 4/22/2024
Time : 11:04:45 AM

Sold To GRAITEC
17,Burospace
BIÈVRES, 91572

Ship To GRAITEC
17,Burospace
BIÈVRES, 91572

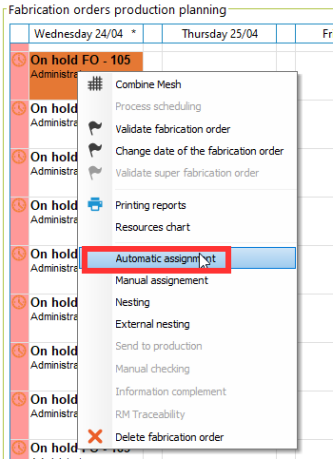
Order No :	P2021-162	**Dated :**	4/12/2024	**Quote No :**	0
Customer :	GRAITEC			**PO Num :**	APL/P2021/162
Ship Via :				**Priority :**	0
Part Number :				**Product Code :**	Steel connection
Description :					
Drawing Number :				**Revision :**	**Dated :**
Start Date :	4/10/2024	**Finished Date :**	4/22/2024	**Master Job No**	P2021-158
Contact :				**Phone :**	
				Fax :	
Total Qty Open :		**Qty Posted :**		**Qty To Make :**	

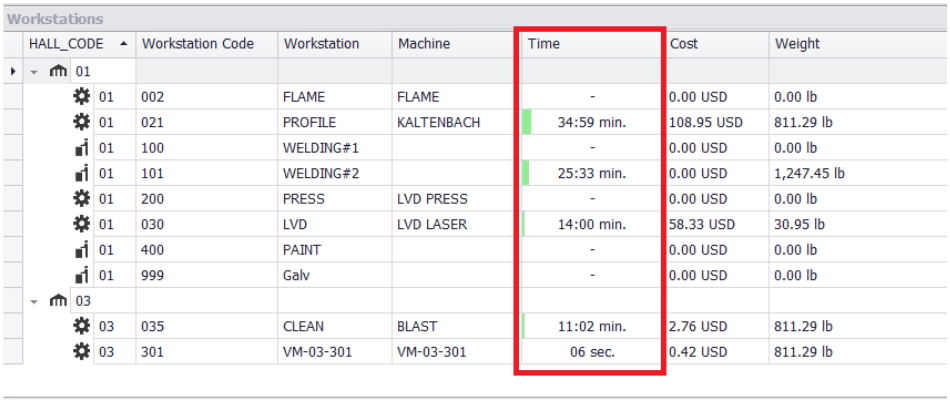
Routing

Routed by : **Quantity**

Step No / Dept	Work Cntr / Vendor / Operation	Description	Setup Time	Cycle Time	Total Time
035	CLEAN	SHOTBLASTING	0	612	0
PROCESS	CLEAN			612	
021	PROFILE	KALTENBACH22	0	4747	0
PROCESS	LCUT			4029	
PROCESS	DRILL			718	
002	FLAME	FLAME MACHINE	0	567	0
PROCESS	PCUT			567	
030	LVD	LASER MACHINE	0	980	0
PROCESS	PCUT			980	
101	WELDING#2	WELDING#2	0	9615	0

The information contained by this report is also available at interface, by selecting the Fabrication Order, right click and run "Automatic Assignment". The information about times is aggregated similar as in the report, at the bottom of the dialog.





15.3. AWS_NESTING1D

This type of report is designed to provide information relating to the result of the steel profiles nesting. It can be used by getting in menu "7.10 Manufacturing production planning", selecting a Fabrication Order, and go to print category "19. Debit sheet".

It lists a breakdown report about the profile elements together with the raw materials from which are assigned to be cut off, the end of the report offers also a summary of the total raw material amount involved in that specific Fabrication Order.

Fabrication order: BTR21 - 156

Workstation: KALTENBACH22

Nesting #	Item code	Item ref	Length (ft/in)	Remnant	Quantity	Unit weight (lb)	Total weight	Material
1,130	AISC-HSS-SQ-013	HSS 14X14X1	30' 0"	2.59"	1	2690.4	2690.4	ASTMA500G

Customer order	Mark	Quantity	Length (ft/in)	Weight (lb)	Cutting angles	
P2021 - 144	C1001	1	14' 10.25"	1332.12	0.0	0.0
P2021 - 144	C1003	1	14' 10.25"	1332.12	0.0	0.0

Nesting #	Item code	Item ref	Length (ft/in)	Remnant	Quantity	Unit weight (lb)	Total weight	Material
1,131	AISC-HSS-SQ-013	HSS 14X14X1	30' 0"	2.59"	1	2690.4	2690.4	ASTMA500G

Customer order	Mark	Quantity	Length (ft/in)	Weight (lb)	Cutting angles	
P2021 - 144	C1001	1	14' 10.25"	1332.12	0.0	0.0
P2021 - 144	C1004	1	14' 10.25"	1332.12	0.0	0.0

Nesting #	Item code	Item ref	Length (ft/in)	Remnant	Quantity	Unit weight (lb)	Total weight	Material
1,132	AISC-HSS-SQ-013	HSS 14X14X1	30' 0"	2.59"	1	2690.4	2690.4	ASTMA500G

Customer order	Mark	Quantity	Length (ft/in)	Weight (lb)	Cutting angles	
P2021 - 144	C1001	1	14' 10.25"	1332.12	0.0	0.0
P2021 - 144	C1001	1	14' 10.25"	1332.12	0.0	0.0

List of bars used

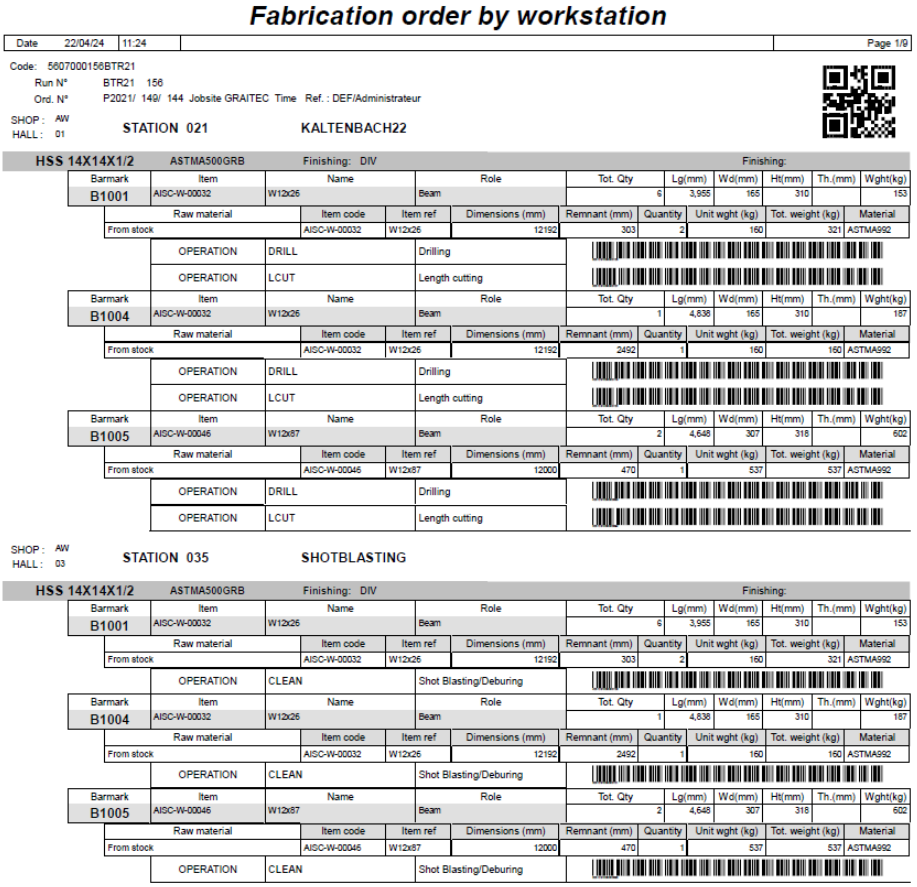
Item code	Item ref	Material	Lgth (ft/in)	Qty	Unit wgt (lb)	Total wgt (lb)	Scrap (ft/in)	Scrap (%)	Scrap (lb)
AISC-HSS-SQ-01	HSS 14X1	ASTMA50	9144	1	1220.34491	1220.34491	2.59"	0.7	19.39
AISC-HSS-SQ-01	HSS 14X1	ASTMA50	9144	1	1220.34491	1220.34491	2.59"	0.7	19.39
AISC-HSS-SQ-01	HSS 14X1	ASTMA50	9144	1	1220.34491	1220.34491	2.59"	0.7	19.39
AISC-HSS-SQ-01	HSS 14X1	ASTMA50	9144	1	1220.34491	1220.34491	15.59"	4.3	116.54
AISC-HSS-SQ-30	HSS 14X1	ASTMA50	7620	1	1220.34491	1220.34491	3' 0.93"	12.3	331.19
AISC-W-00032	W12x26	ASTMA99	12192	2	160.4821	320.9642	11.95"	2.5	8.81
AISC-W-00032	W12x26	ASTMA99	12192	1	160.4821	160.4821	8' 2.14"	20.4	72.34
AISC-W-00032	W12x26	ASTMA99	12192	1	160.4821	160.4821	8' 2.16"	20.4	72.35
AISC-W-00032	W12x26	ASTMA99	12192	1	160.4821	160.4821	8' 8.88"	21.9	77.31
AISC-W-00032	W12x26	ASTMA99	12192	1	160.4821	160.4821	24' 7.43"	61.5	217.76
AISC-W-00046	W12x87	ASTMA99	12000	1	536.9978	536.9978	18.54"	3.9	2.4
AISC-W-00046	W12x87	ASTMA99	12000	1	536.9978	536.9978	2' 3.48"	5.8	3.56
AISC-W-00046	W12x87	ASTMA99	12000	1	536.9978	536.9978	12' 9.16"	32.4	19.83
AISC-W-00140	W24x117	ASTMA99	12000	1	722.16945	722.16945	15' 9.59"	40.1	33.01

Total	
Quantity	**15**
Weight (T US)	**10.359**
Length (ft/in)	**502' 5.76"**
Scrap weight (T US)	**0.507**

15.4. AWS_FO_BY_WSTATION

The report is designated to oversee parts production at each workstation level.
It's available by entering in menu "7.10 Manufacturing production planning", selecting a Fabrication Order, and going to the print category "19. Debit sheet".

Within the report we can find information regarding the operations that occur on each individual machine, grouped based on the produced part and considering the raw material involved in the process. Additionally, barcodes are available at each level of operation, allowing real-time status of the production by scanning and sending the information into the system.



Fabrication order by workstation

Date 22/04/24 11:24 Page 1/9

Code: 5607000156BTR21
Run N° BTR21 156
Ord. N° P2021/ 149/ 144 Jobsite GRAITEC Time Ref. : DEF/Administrateur

SHOP : AW
HALL : 01 STATION 021 KALTENBACH22

HSS 14X14X1/2 ASTMA500GRB Finishing: DIV Finishing:

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1001	AISC-W-00032	W12x26	Beam	6	3,955	165	310		153

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00032	W12x26	12192	303	2	160	321	ASTMA992

OPERATION	DRILL	Drilling
OPERATION	LCUT	Length cutting

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1004	AISC-W-00032	W12x26	Beam	1	4,838	165	310		187

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00032	W12x26	12192	2492	1	160	160	ASTMA992

OPERATION	DRILL	Drilling
OPERATION	LCUT	Length cutting

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1005	AISC-W-00046	W12x87	Beam	2	4,648	307	318		602

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00046	W12x87	12000	470	1	537	537	ASTMA992

OPERATION	DRILL	Drilling
OPERATION	LCUT	Length cutting

SHOP : AW
HALL : 03 STATION 035 SHOTBLASTING

HSS 14X14X1/2 ASTMA500GRB Finishing: DIV Finishing:

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1001	AISC-W-00032	W12x26	Beam	6	3,955	165	310		153

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00032	W12x26	12192	303	2	160	321	ASTMA992

OPERATION	CLEAN	Shot Blasting/Deburing

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1004	AISC-W-00032	W12x26	Beam	1	4,838	165	310		187

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00032	W12x26	12192	2492	1	160	160	ASTMA992

OPERATION	CLEAN	Shot Blasting/Deburing

Barmark	Item	Name	Role	Tot. Qty	Lg(mm)	Wd(mm)	Ht(mm)	Th.(mm)	Wght(kg)
B1005	AISC-W-00046	W12x87	Beam	2	4,648	307	318		602

Raw material	Item code	Item ref	Dimensions (mm)	Remnant (mm)	Quantity	Unit wght (kg)	Tot. weight (kg)	Material
From stock	AISC-W-00046	W12x87	12000	470	1	537	537	ASTMA992

OPERATION	CLEAN	Shot Blasting/Deburing

15.5. Quotation report*

This report can be available based on the request, in the menu "9.2.1 Quotation" and it is used alongside the newly developed "Grouping" option (available in the same menu).

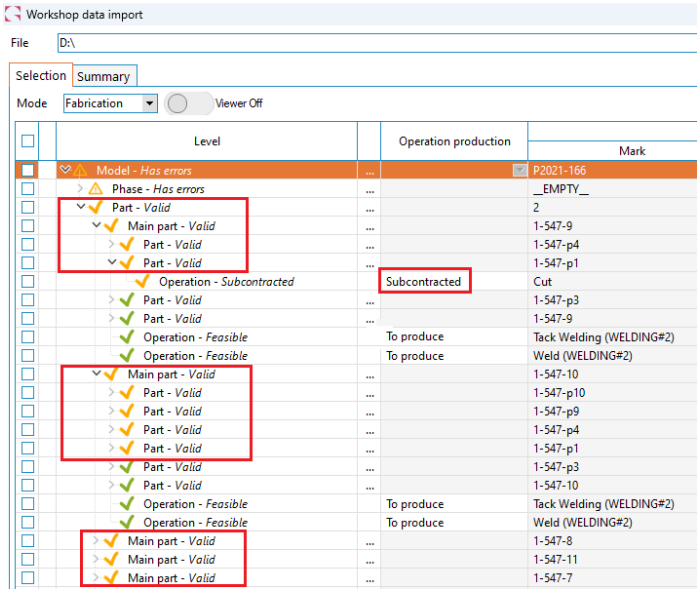
Line	Quantity	UM	Part	Description	Price $	Extension $
1	1.000	EACH	EQUIPMENT PLATFORMS	Manufacture pre-fabricated components for (1) freestanding structural equipment platforms (nut & bolt) construction according to the following specifications: Dimensions: (2) 20'-0" x 8'-0" Modules connected by Upper Bridge Overall Dimension: 46'-6" x 8'-0" Usage: Equipment Support and/or Access Live Load: 125 psf Top of Deck: 11'-2.75" Under Clearance: 10'-0" Decking: 1" x 3/16" Painted Bar Grating (1) Stairway with Upper Bridge Landing 6'-6"" x 8'-0" 56 LF of 42" Tall Pipe Guard Rail with 4" Min. Kick Plate Powder Coat Paint Finish Color(s) of Customer's Choice	459.09	528.26
2	1.000	SQFT	Item Grouping Painting		2,000.00	2,500.00
3	1.000	EACH	INSTALLATION SERVICES		14,675.00	14,675.00
4	2.000	EACH	DEDICATED TRUCKS		2,250.00	4,500.00

This quote includes P.E. stamped drawings **Total for Quote $** **22,203.26**

16. General enhancements

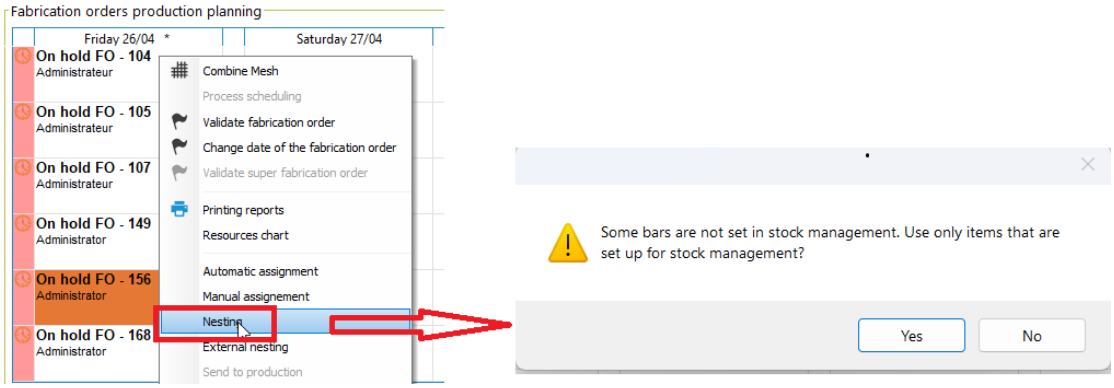
16.1. Import dialog - subcontracting

The import dialog can track down the status of operations & items and highlight at upper levels of items.
Now you can easily notice if one of the Assemblies (Main part) or Part contains something assigned as "Subcontracted" since their status is updated automatically (into yellow check mark), up until now requiring expanding and checking manually each item's branch.

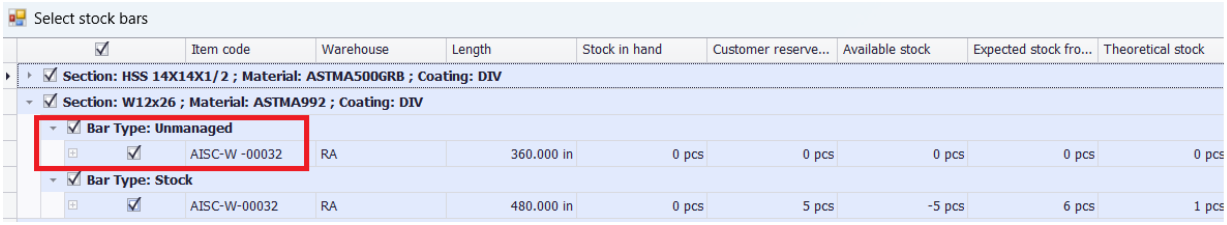


16.2. Nesting on Stock materials only

While you are about to launch the nesting process from Fabrication Order (menu "7.10 Manufacturing Production planning"), you'll be prompted to choose between all the item stored in Items menu or elements stored in stock exclusively.



Based on this choice, the nesting dialog will list as available raw materials, only the steel profiles that correspond to the choice (all profiles or only the ones that have stock records). This means, that based on the user's choice, the nesting dialog will list only items found in the menu "11.1.1 Items stock" or all items defined in menu "1.10.4 Items". Here is an example where the choice at the dialog question was "No" and the nesting dialog shows items that are not being tracked as Item Stock, and grouped under the "Unmanaged" category.

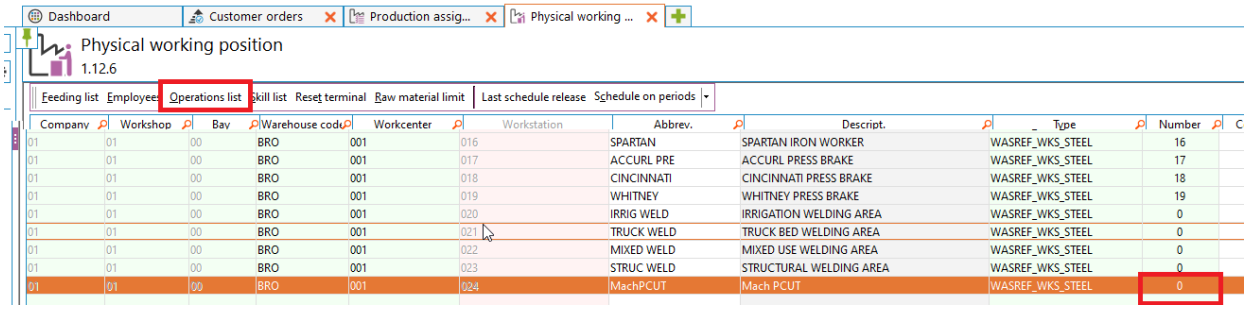


16.3. Mapping any operation type to any workstation type

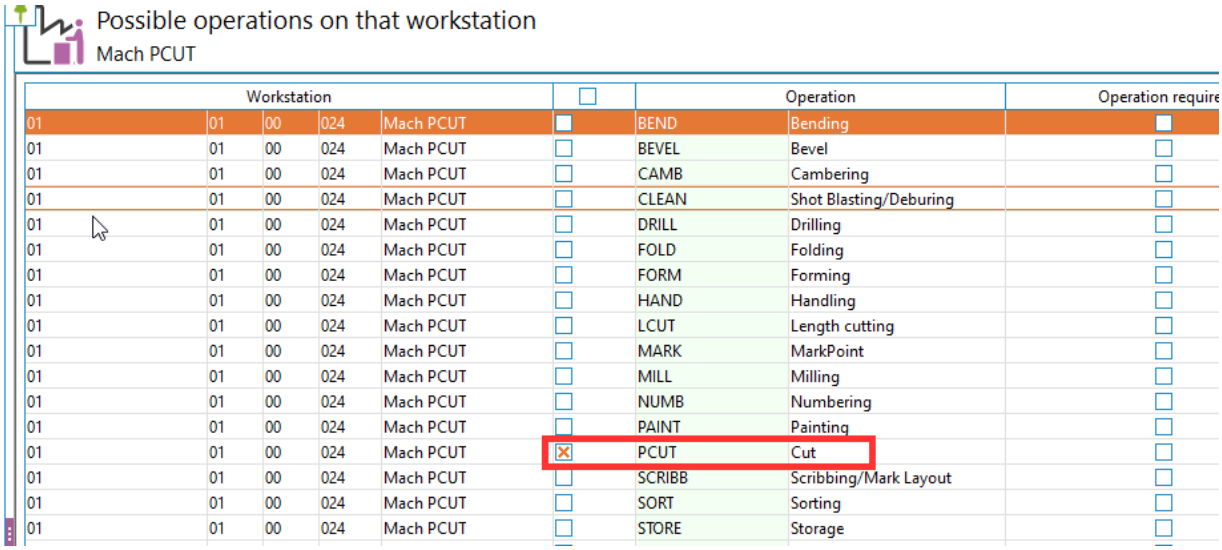
The difference between a workstation and a machine is that workstation may or may not have associated a machine. In case of a workstation without a machine associated to it, we consider it as "manual workstation" (e.g. a work bench) and the current enhancement handles this situation, by allowing the association of any operation to such workstation type.
Being a relatively complex multistep configuration, we iterate a basic configuration example for such a situation, considering PCUT (plate or contour shape cut) that is handled manually by a worker (at a manual workstation).
First, the manual workstation is defined and the operation that needs to be executed on it.

This is done by accessing the menu "1.12.6 Physical working position" and making the next settings:

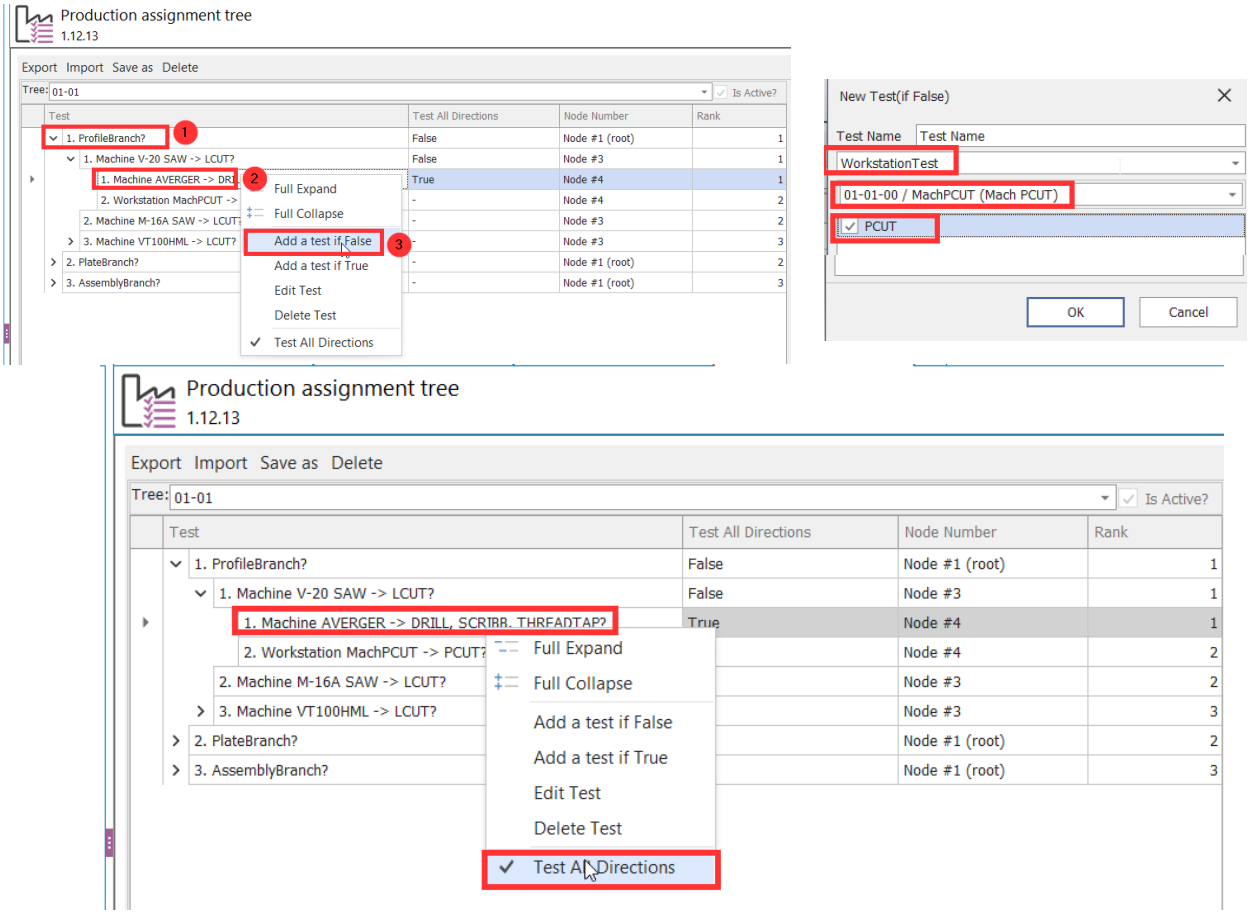
- create a manual workstation



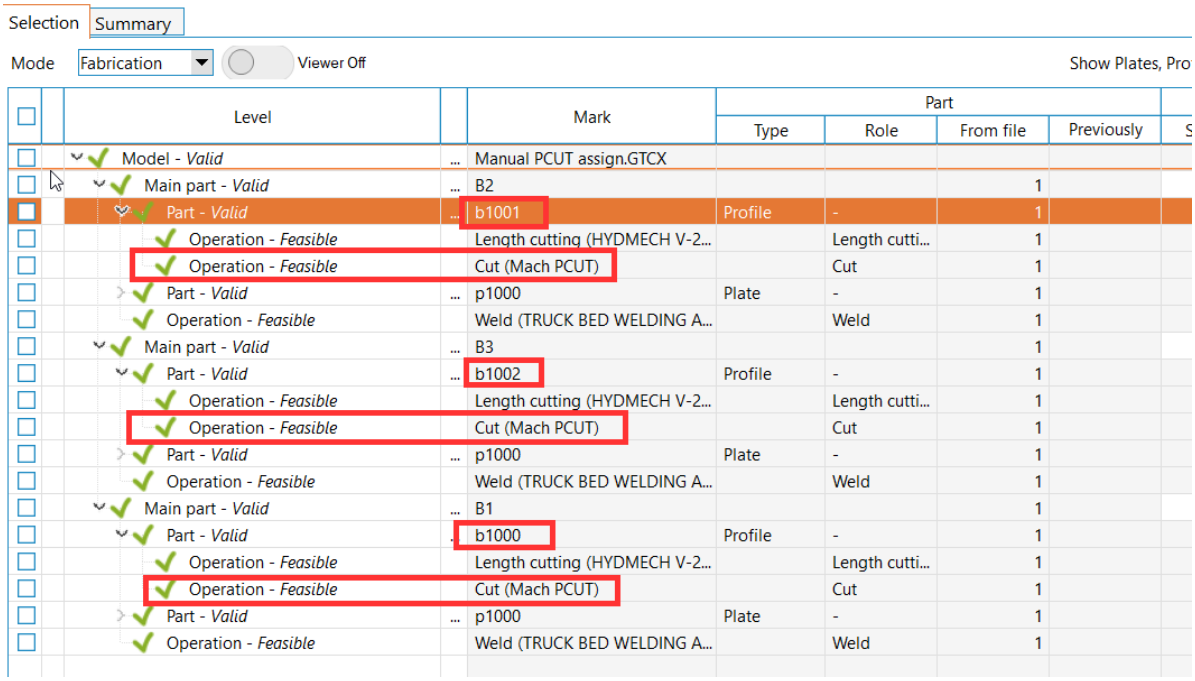
- set operation as being available at workstation level



Next step is to assign the operation (PCUT in this example) from menu "1.12.13 Production assignment tree". Following the steps and settings from next pictures we achieve this requirement as well.



Once all these are set, the specified operation is going to be automatically assigned to newly defined manual workstation during the import process into a Customer Order, as it can be noticed in the picture below:



Disclaimer:
Topics marked with * symbol may require specific customization, adjusted to specific environment (database), in order not to interact or to be altered by other set-up functionalities.