






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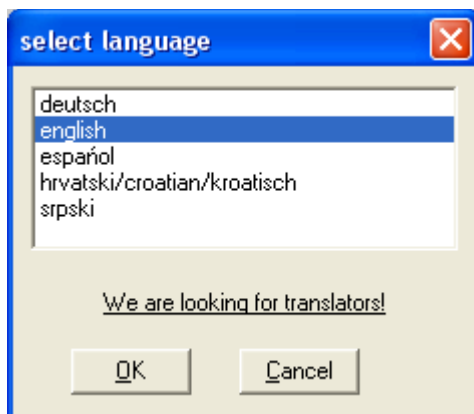
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# 1 General Description

It's easy to position few parts on one or two base sheets. With a greater amount of parts the problem of cut optimization gets bigger for people. At this point, Wood-Works is to be worth it. Just think about the expenditure of placing a great amount of parts on many base sheets, where many different dimensions of them are possible. Persisting trying cannot be the best strategy for this problem and the result is in most cases not the best one.

## 1.1 Language Selection

By choosing the menu Common - Language you can select one of the shown languages.



## 2 Cut

### 2.1 General Description

Before you can start the cut optimization, you must have entered all necessary data. In this documentation we describe the base-boards, from which the parts will be cut, as base sheets or sheets. Please recognize, that you can only use parts and sheets of the same type for one cut optimization (at the moment!). (for example: no different surfaces or colors for one cut optimization, but of course different length and width measures). It is projected to be able to use different materials in one optimization-step!

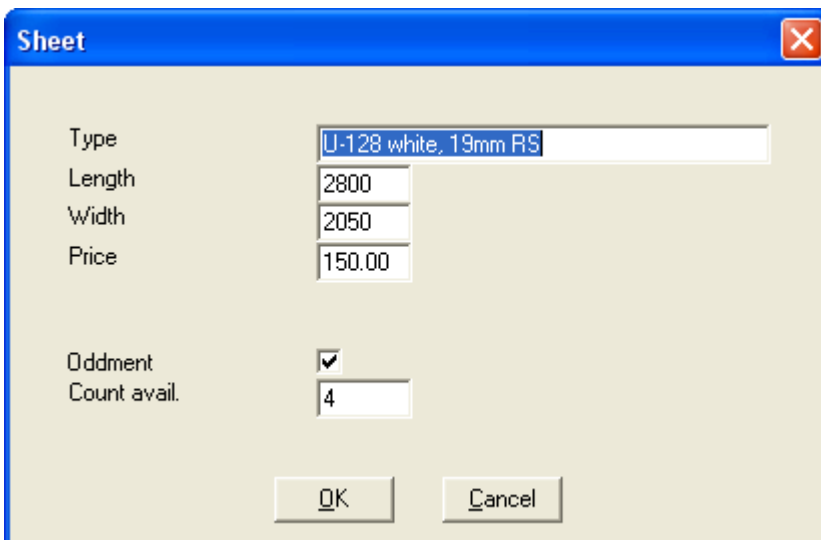
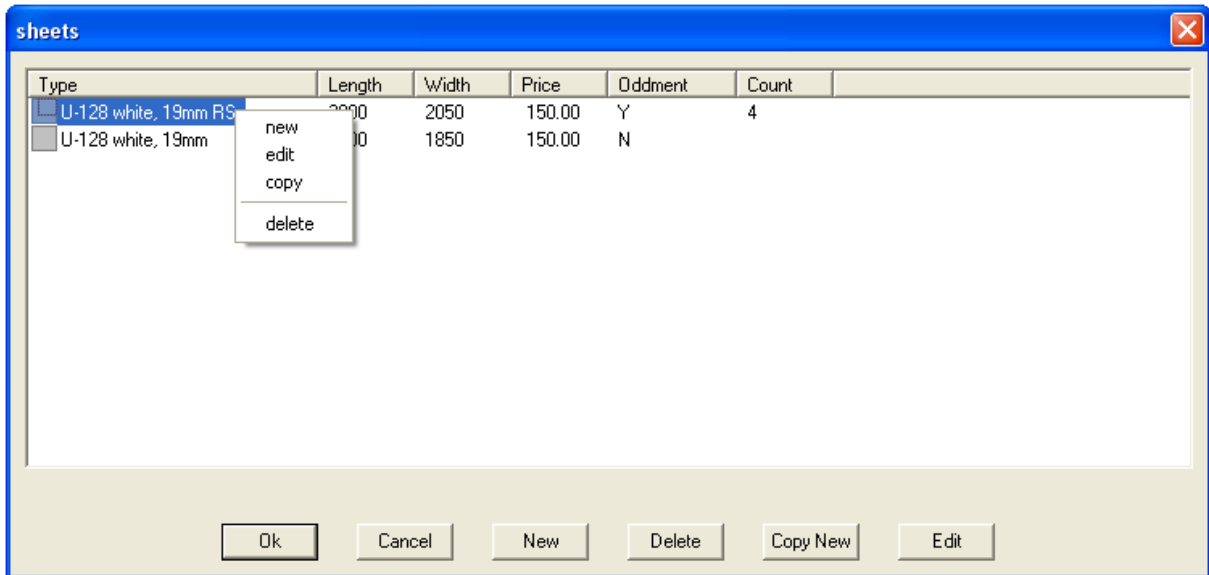
### 2.2 Base Sheets

#### 2.2.1 General Description

You can enter different sizes of base sheets, which will be used for the optimization. Of course, there are a more possibilities for Wood-Works to find good solutions, if you enter different sizes of base-sheets. If Wood-Works may use different base-sheet types in one optimization, you can chose by the settings entry: change sheets. Enter only sheet sizes, you want to use for the cut.

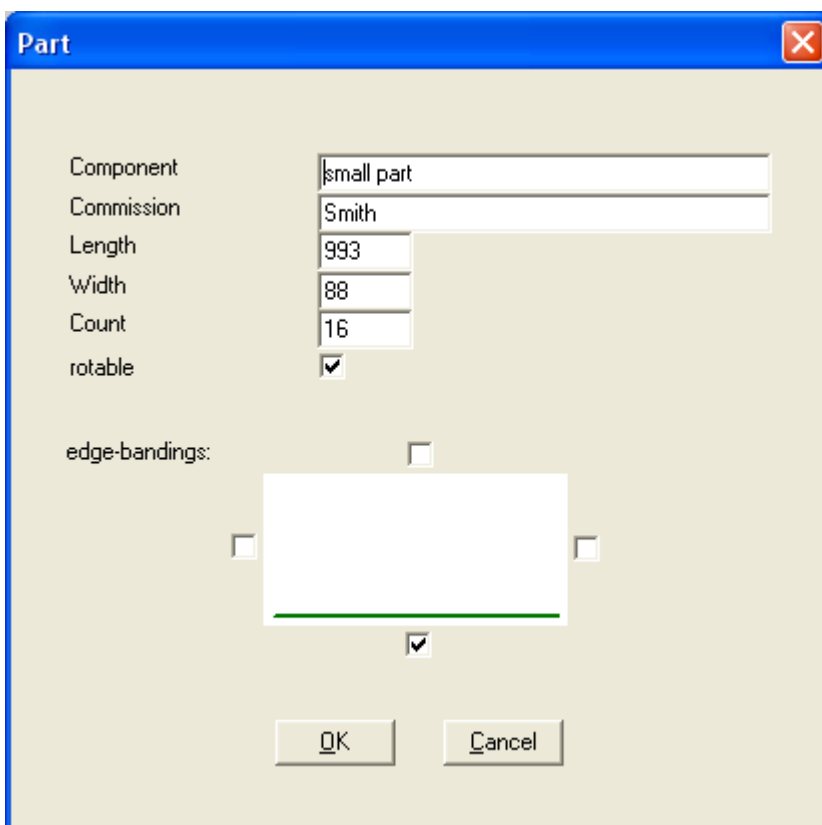
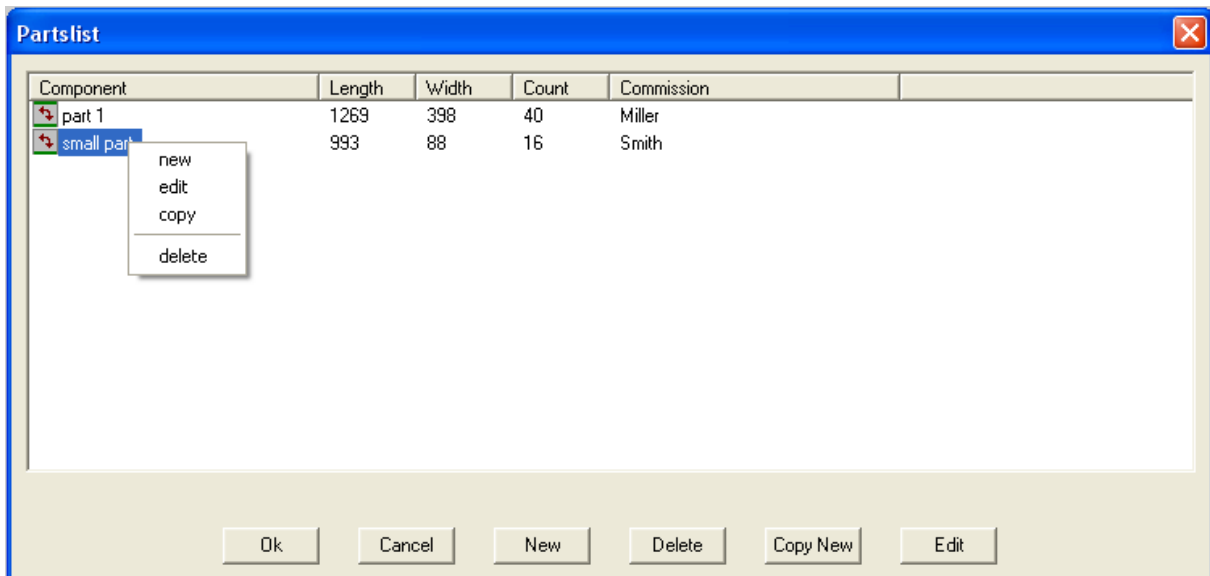
#### 2.2.2 Input, edit

By choosing this menu entry, you can enter length, width, price, and a short description of this sheet type. The length and width specification are in millimeters. The price is for one base-sheet. It will be used to calculate the complete cut. The short description of the base sheet will be printed on the layouts (cutting-maps).



Edit, add or delete the base-sheets by using the buttons, the context-menu or double-clicking the corresponding listentry. Click the oddment-checkbox, if the sheet is an oddment or you have only a limited number of this sheets.

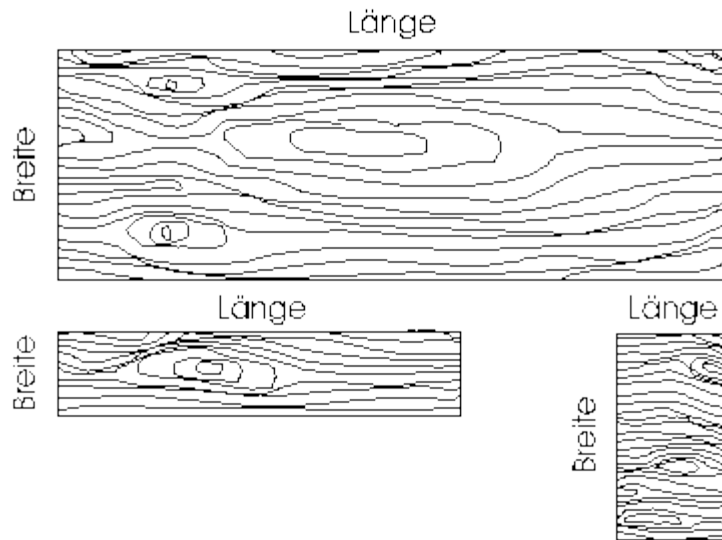
## 2.3 parts list



Edit, add or delete the parts by using the buttons, the context-menu or double-clicking the corresponding listentry

### 2.3.1 Measurements

At this menu entry you can enter your parts list. The handling of this window is nearly the same as editing base-sheets. When you enter length and width of a grained wood, you must be careful about the direction of grain. See a sample below:



You see, the length of a part does not need to be the greater measurement. Please also take care of the setting: revolvable parts (it must be set to "N" for grained wood). At the entry field "num" you enter the amount of desired pieces for this optimization.

### 2.3.2 Edge-bandings

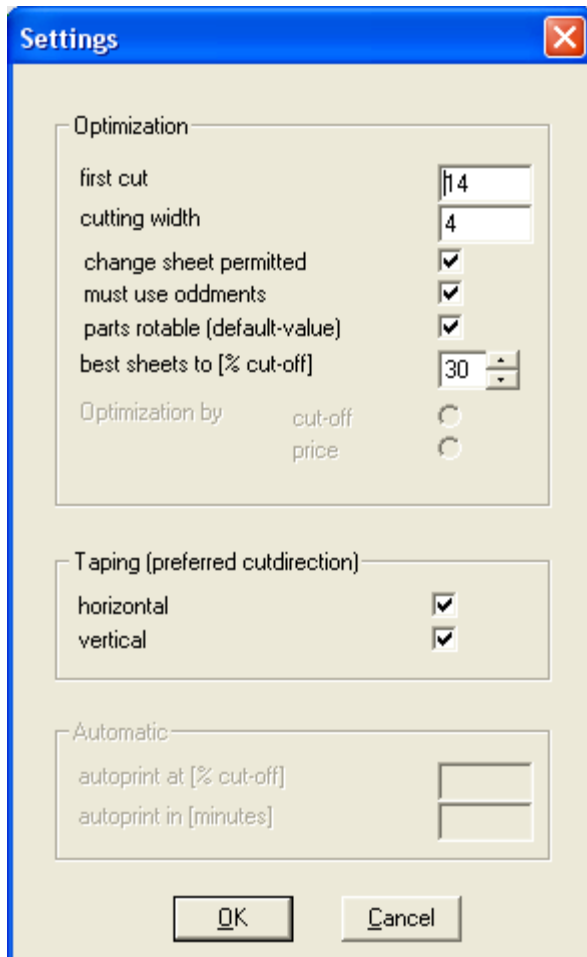
There is information, which part has edge-bandings on which side.

This map also shows the calculated overall length of the edge-bandings. Also see chapter "optimization".

## 2.4 Settings

### 2.4.1 General Description

Since different settings are needed for different cuttings, you can enter them here.



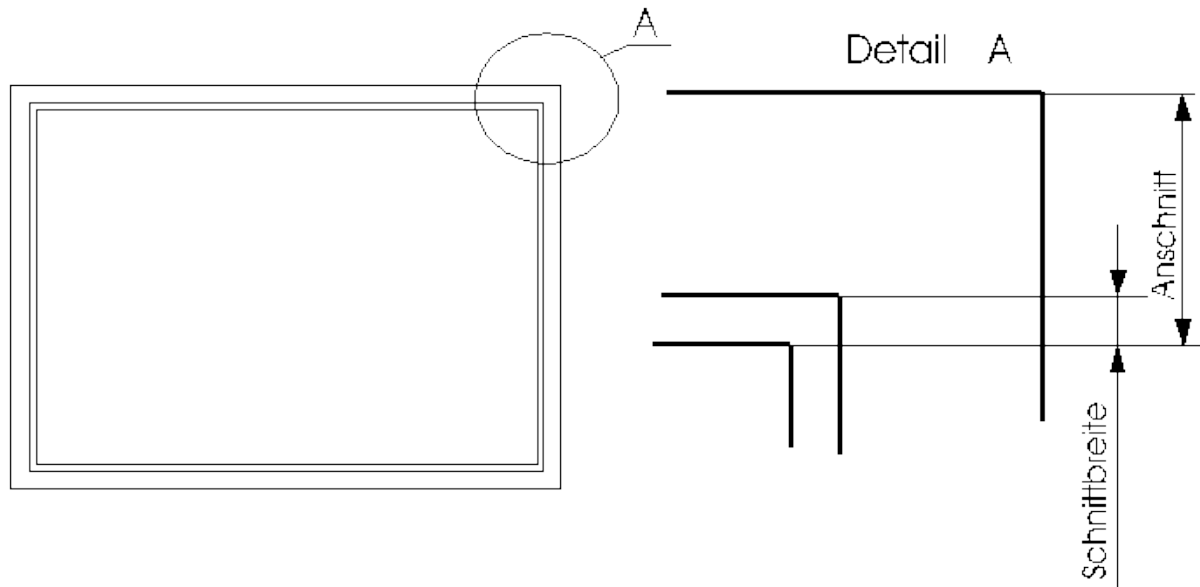
### The Settings in Detail:

#### 2.4.2 Cutting Width

To be able to produce an exact cutting plan, it is necessary to consider the width of the saw blade. You have to round up to the next millimetre.

#### 2.4.3 First Cut

With the First Cut you can eliminate damages at the edge of the sheet. The size of the sheet is reduced by the entered value at each side.



#### 2.4.4 Change Sheets permitted

As described at chapter Base Sheets it is possible to enter some sheets of the same type having different sizes, since they are available in different sizes. At greater cuttings it is not easy to find out, which size of the sheet should be used for a better result. If you check this checkbox, WoodWorks can position the parts on each size of the sheets within one cutting plan. It is possible, that you have to provide all sizes of sheets for one cutting, but WoodWorks has better possibilities to make a good result. If you want to use just sheets of one size, you should uncheck this checkbox. Woodworks tries to find an optimal Result using each of the sizes. This can be of advantage in buying Base Sheets.

#### 2.4.5 Must use oddments

If this checkbox is checked, all plates that are marked as “oddment” have to be used for the optimization, even if the result would be better not using them.

#### 2.4.6 Revolvable Parts (defaultvalue)

This parameter causes a consideration of surface texture of the parts and base sheets. If you set this Parameter to on (checked), the parts can be rotated for 90 degrees. If the parts have surface texture, a rotation of them is usually not allowed, so you set this parameter to no. Important: Revolvable Parts cause a better optimization than not revolvable. You recognize a rotated part by the callsign in the layout.

#### 2.4.7 Minimize Costs (wip)

If the price of a square meter is very high, it is a good idea to optimize for the price. This optimization type tries to keep the price low but eventually causes a less beautiful cutting optimization. Most time you will set this parameter to  $<N>0$ . Important: An optimization for lowest price is only meaningful with correct entered price values.

#### 2.4.8 Crosscutting (Taping/Striping)

By setting one of the two switches (lengthwise and crosswise) to on, the parts are arranged in that way, that many cuttings are possible in this direction. This saves time while cutting since you have to rotate the base sheet not that often. Most time you will set this parameter on. If the base sheets are very expensive, you set this

parameter to no, since taping may cause a not optimal cutting plan. If both switches (lengthwise/crosswise, horizontal/vertical) are set to off, this can cause more rotations of the base sheet during cutting. If both switches are set to on, WoodWorks decides the main cutting direction.

### 2.4.9 Autoprint at/autoprint in (wip)

If you enter an other value than 0 in the field “autoprint in”, WoodWorks will automatically print out the layouts after expiration of the so given minutes. On the other hand, if you enter an other value than 0 in the field “autoprint at”, WoodWorks will automatically print out the layouts after the actually computed cut-off is less or equal to the so given value. If you set both values other than 0, the print-out takes place if one of the two conditions is true (whatever comes first).

### 2.4.10 Best sheets to .. [% cut off]

#### 2.4.10.1 How becomes a sheet a „best sheet“?

During the computation of the optimal cut Wood Works finds again and again sheets, whose cut-off lies below a certain limit. You can specify this border with this parameter. Sheets with a smaller cut-off than this value (= elite plates), will be used for further computations consulted. Thus, with this value you can determine, starting from which limit the sheet becomes an elite sheet.

#### 2.4.10.2 Correct selection of this value

Unrealistic values for elite sheets can affect the computing time negatively. It should move approximately in the order of magnitude of the expected result, whereby a rather higher estimation is of advantage. If you have problems to specify this value give a freely selected value (e.g.: 20 to 30%). Then you let the optimization run some minutes. If the best cut has a high deviation from your value for the elite sheet, it is better to break the optimization off and the reset the elite sheet border according to the best value you find in the top-ten. Note that the cut-off value which can be expected will sink still under the present value. Set therefore your estimation somewhat lower.

A reference to a too low value is, if after some optimization time the number of elite sheets is still relatively small (for example: after 10 minutes optimization time less than 10 elite sheets).

Keep in mind that it is necessary to get an intuitive feeling for this value, a good selection will increase the efficiency substantially.

### 2.4.11 Open/Save as

This menu-option is used to store your current cut-data in a file and restore from file.

### 2.4.12 Batch-mode (wip)

In order to accomplish optimizations completely without user inputs, you are able to operate WoodWorks in batch-mode. The control is made by the import file as well as by parameters and/or Environment variables:

## 2.5 Start, stop or continue the Optimization

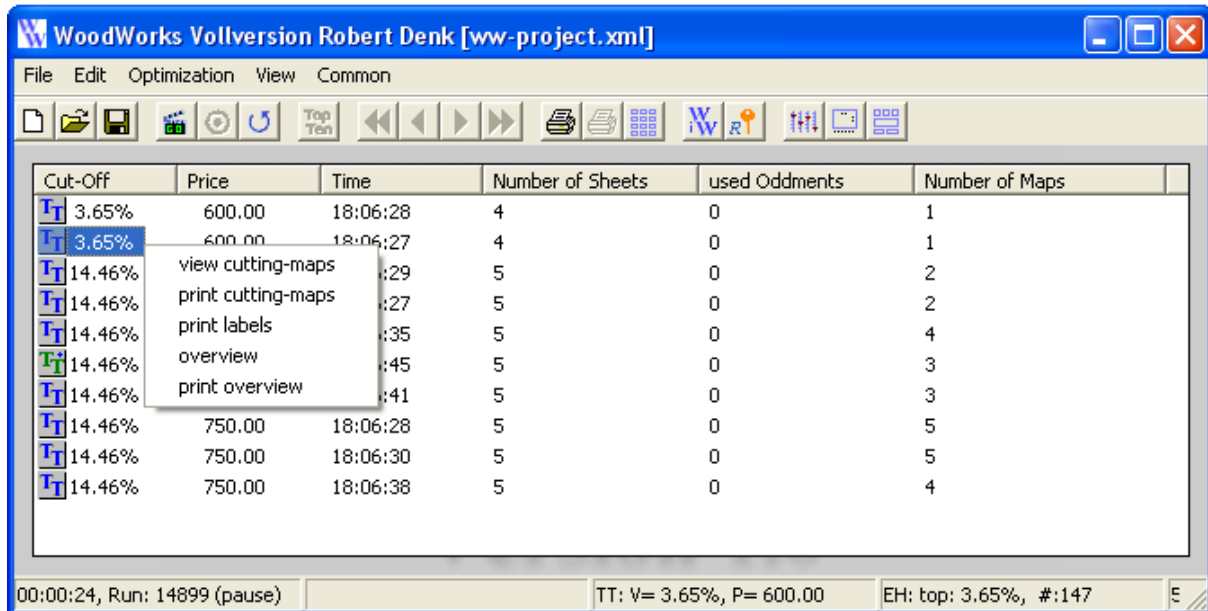
As the optimization is running, you can view the results by doubleclicking the corresponding topten-entry in the column “Cut-Off”. It is recommended to stop the optimization (via menu or the icon-buttons) before viewing or



printing. More detailed options like printout of layoutss/labels/overview you will obtain by using the context-menu (right-mouse click in the column "Cut-Off").

### 2.5.1 Top-Ten-List Top Ten

The Top-Ten-List is the list of the ten best optimization results found. There will be different layoutss with same cut-off, but different placements of the parts. You may decide which to use or use always the best on top.



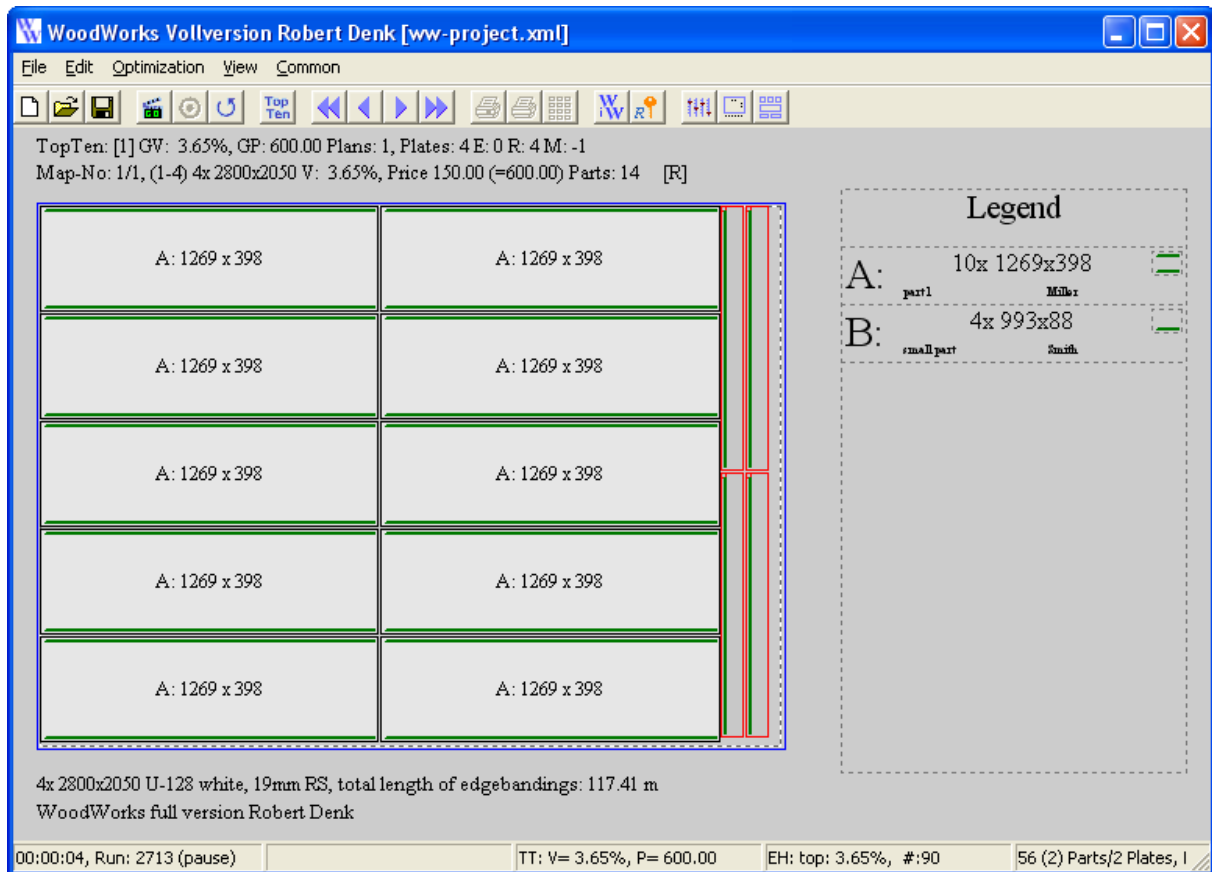
Cut-Off	Price	Time	Number of Sheets	used Oddments	Number of Maps
TT 3.65%	600.00	18:06:28	4	0	1
TT 3.65%	600.00	18:06:27	4	0	1
TT 14.46%		:29	5	0	2
TT 14.46%		:27	5	0	2
TT 14.46%		:35	5	0	4
TT 14.46%		:45	5	0	3
TT 14.46%		:41	5	0	3
TT 14.46%	750.00	18:06:28	5	0	5
TT 14.46%	750.00	18:06:30	5	0	5
TT 14.46%	750.00	18:06:38	5	0	4

00:00:24, Run: 14899 (pause)      TT: V= 3.65%, P= 600.00      EH: top: 3.65%, #:147

By double-clicking the corresponding listentry you can view the layouts on screen. If you use the context-menu (right mousebutton), you can view the layouts or print the layouts/labels/overview. The overview represents the offer-data.

### 2.5.2 View the optimization results

As the optimization is running, you can view the results by double-clicking the corresponding TT-entry in the column "Cut-Off". The optimization will stop and the result is shown.



Use the menu (view /next/prev/first/last) or the toolbar (  ) to navigate through the layouts.

### 2.5.3 Print the optimization results

Using the context-menu (right mousebutton in the column “Cut-Off”) you re able to print the layouts, the labels or the overview. Printing the layouts, it is usefull to select “landscape”.