

**OPTIMIZER™ Suite** is the most powerful rectangular shape nesting software for Through and Through shearing / cutting operations that will automatically optimize the placement of Cut-Pieces or Parts on rectangular Sheets / Plates of any raw material, including sheet metal, glass, fabrics, leather, wood, etc. in order to minimize material wastage.

Base Module - c:\samtec\projects\optsuite\sample.opt

File Edit Optimize View Tools Help

B S C R L O

Basic Details

MAT	GRADE	THICK	BLADE	TOL	KERF	NOTE
MS		3.15	9999999			DEFAULTS

Sheet Specifications

Sr No	LENGTH	WIDTH	QTY	M(L)	M(T)	M(R)	M(B)	LOCATION
1	2500	1250	75					RACK A
2	3000	1500	50	10	10	10		

Cut-Piece Specifications

Sr No	LENGTH	WIDTH	QTY	ORN	DESCRIPTION
1	729	663	240		SIDE PNL
2	736	446	480		SIDE PNL
3	482.5	425	2		TOP PNL

1755

### Single screen interface

- Material details i.e. material type, its grade and thickness.
- Machine details viz. Length of the shear Blade, Tolerance, and Kerf.
- Prime Sheet details.
- Cut-Piece details.

Layouts

1 / 7

Layout No. 1 / 7

Basic Details  
Mat=MS Grade=  
Blade=9999999 Tol=0  
Note: DEFAULTS

Sheet (s) Used  
Size : 2500 X 1250  
Margins : 0(M/L) 0(M/T) 0(M/R) 0(M/B)

Quantity: 80  
Yield(%): 91.04

Cut-Pieces Generated

Length	Width	QtyPro	Descript
729	663	3	SIDE PNL
736	446	3	SIDE PNL
482.5	425	2	TOP PNL

### Basic Advantages

#### Cost:-

- Cost reduction due to the decrease of waste in prime Sheets / Plates.
- Reuse of Off-Cuts.
- Substantial time and error reduction in cutting Layout preparation.

#### Purchase:-

- OPTIMIZER™ Suite** provides the best possible combination of the different input Sheets / Plates based on the given requirements. This helps Planning personnel to order required input Sheets / Plates along with their respective quantities.

#### Estimation:-

- While quoting to customers, **OPTIMIZER™ Suite** provides the exact raw material needed for the given requirements. This makes estimate more realistic.

#### Planning:-

- OPTIMIZER™ Suite** proves to be a great asset while combining a number of production jobs at a time. This helps in achieving even more material saving.



### SAMTEC Solutions (P) Limited

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## Technical Features

- ◇ **Nesting options** provided:
  - ◆ **Maximum Yield** to reduce material wastage.
  - ◆ **Minimum Layouts** to reduce the number of cutting patterns generated so as to reduce the number of machine settings.
- ◇ **Blade Length** is used to specify the length of the shear machine blade to consider physical cutting restrictions.
- ◇ **Tolerance** in dimensions helps in achieving a greater material yield.
- ◇ **Kerf** or clearance along the Cut-Piece edges can be specified for making a provision for the material loss at the time of actual cutting.
- ◇ Provision for defining **Scrap Criteria** so as to distinguish between usable and non-usable Off-Cuts. Off-Cuts, which cannot be further reused, are automatically labeled as **Scrap**.
- ◇ **Flexible units** Dimensions can be specified in any unit with full conversion facility using the **Unit Conversion Tool**.
- ◇ **Density Table** is provided for storing the density of different materials used for calculation of weight of the Sheets / Plates and Cut-Pieces / Parts.
- ◇ **Backup** feature helps in taking a backup copy of **OPTIMIZER™ Suite** files.

- ◇ **Report** shows details such as Overall Yield, Sheets utilized, Cut-Pieces produced along with their weights, Layout and Off-Cut summary.
- ◇ **Off-Cut Table** displays the details of the Off-Cuts produced in each Layout after optimization.
- ◇ **Layouts or cutting patterns** display all cutting details such as Sheet, Cut-Piece, Off-Cut and margins dimensions, cutting line dimensions, Cut-Piece descriptions etc.
- ◇ **Alternate Arrangement** feature generates different arrangements of the Cut-Pieces within the same Layout as shown below.



- ◇ **Manual Editing of Layouts** after optimization is provided for :
  - ◆ Adding new Off-Cuts or Cut-Pieces.
  - ◆ Moving or deleting Off-Cuts and Cut-Pieces.
  - ◆ Resizing Off-Cuts.
 All the changes made in the Layouts manually are updated in the relevant Report and Off-Cut Table.
- ◇ Layouts can be **magnified, resized** for better view of details.

Print Labels  
Print Layout(s)  
Zoom  
Settings  
Alternate Arrangement  
Select Layout

**L Layouts**

3 / 11

Layout No. 3/11

Sheet (s) Used  
Size : 2500 X 1400  
Margins : 0 (ML) 0 (MT) 0 (MR) 0 (MB)  
Quantity: 1  
Yield(%): 93.26

Cut-Pieces Generated					
Length	Width	Qty	Pro	Description	
1560	450	2		CDC O/C SIDE	
700	663	2		DRAWER BODY	
740	446	2		I/C T/B	
412	220	3		DRAWER BACK	

  

OffCut Generated					
Length	Width	Length	Width	Length	
1560	54	446	80	700	
1400	20				

### Layouts can be

- ◇ Viewed in any random order.
- ◇ Magnified.
- ◇ Printed.
- ◇ Labeled.
- ◇ Customized to display the required details.
- ◇ Rearranged if required.
- ◇ Edited manually to add or delete Cut-Pieces / Off-Cuts.



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**D**E-COIL MANAGER [DCM] is applicable to industries using coils in shearing / cutting operations. It helps in determining the exact lengths that are to be de-coiled from the parent coils, for the given cutting requirements.

As per the traditional practice coils are de-coiled into standard lengths say 2500 mm, which often leads to wastage. **OPTIMIZER™ Suite** eliminates this wastage completely by determining the exact lengths that should be de-coiled from the coils of varying widths. The following example illustrates this:

**PROBLEM**

Coil\_1 Width = 1500 mm  
Coil\_2 Width = 2000 mm

Cut-Pieces Required:

LENGTH	WIDTH	QTY
540	369	1000
768	445	1000
669	385	1000

Determine the lengths and their respective quantities to be de-coiled from the parent coils.

**OPTIMIZER SOLUTION**

Sizes to be de-coiled :

COIL TYPE	COIL WIDTH	DE-COILED LENGTH	QTY
Coil_1	1500	2390	36
Coil_2	2000	2490	143

As seen the lengths to be de-coiled are well below 2500 mm, which means there is a tremendous scope for material saving.

**M**ATERIAL LIBRARY MANAGER [MLM] takes care of inventory management, by automatically feeding in the required Sheets for optimization, keeping track of the Off-Cuts generated and re-utilizing the same in the next process.

**Material Library Manager**

Sr No	MAT	GRADE	THICK	LENGTH	WIDTH	QTY	LOCATION
1	AL	CR	2.25	1050	415	25	RACK E-5
2	AL	HR	1.25	2500	1250	650	RACK E-5
3	AL	HR	5.55	750	345	95	RACK E-5
4	MS	HR	3.15	2500	1250	100	RACK A-1
5	MS	CR	6.14	2200	1200	520	RACK B-1
6	MS	CR	6.14	3250	1500	665	RACK B-1
7	MS	HR	5.25	2000	2000	890	RACK A-2
8	MS	HR	5.25	2400	1400	765	RACK A-2
9	PLY	CORK	3.75	1750	1050	137	RACK C-2
10	PLY	CORK	3.75	950	450	56	RACK C-2
11	PLY	CORK	8.25	2500	2000	440	RACK C-1
12	PLY	OAK	4.25	1950	1200	658	RACK C-3
13	PLY	OAK	4.25	2650	2350	420	RACK C-3
14	SS	302	8.50	3000	1250	950	RACK D-1
15	SS	325	6.25	2250	2250	756	RACK D-1
16	SS	415	10.50	3200	3000	875	RACK D-1



Done

Sample Material Library showing stock details

**MLM functions**

- ◇ Automatically upload Sheets and usable Off-Cuts for optimization.
- ◇ Deduct the Sheets utilized in the process of optimization.
- ◇ Add the Off-Cuts and Scrap pieces to the existing stock and reuse the same in the subsequent process.
- ◇ Provide an up-to-date report of the inventory available at any given point of time along with their weights / areas. This helps in analysis of stock levels as well as material planning & purchase.

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**PRODUCT LIBRARY MANAGER [PLM]** is used for storing the complete details of Final Product(s) viz. name of the final product, name of the component, size of each component, material type, thickness, grade and number of components in the final Product. Once the component list of all the products are ready, the same can be used at the time of actual optimization by specifying only the product name and the quantity required.

**Product Library Manager**

Sr No	PRODUCT	DESCRIPTION	MAT	GRADE	THICK	LENGTH	WIDTH	QTY
1	CABINET	BACK PNL	MS	CR	1.5	1450	1200	1
2	CABINET	BOT PANEL	MS	CR	2	1250	1000	1
3	CABINET	DOORS	MS	CR	1.5	1250	1100	4
4	CABINET	TOP PNL	MS	CR	2	785	650	1
5	CHAIR	BACKP PNL	MDF	IVORY	2	850	765	2
6	CHAIR	BOTTOM PNL	MDF	IVORY	3	345	200	1
7	CUPBOARD	BOTTOM PNL	MS	HR	4	1000	950	1
8	CUPBOARD	DOORS	MS	HR	3	675	550	4
9	CUPBOARD	SIDE PNL	MS	HR	3	1200	1200	2
			HR	4	1250	1000	1	
			GREY	4	450	450	1	
			WHITE	20	1350	1200	1	
			WHITE	18	782	644	4	
			MIC FINE	2	1200	1000	1	
			MIC FINE	3	1400	750	2	
			WHITE	3	678	399	1	

**Used Products**

Sr No	PRODUCTS	QTY	CLIENT
1	CABINET	100	ABC CO. LTD
2			

**Product Choice**

- CABINET
- CHAIR
- CUPBOARD
- STOOL
- TROLLEY

File(s) Suffix: ABCD .OPT

Buttons: [Up/Down], [Left/Right], [Print], [Done]

**Sample Product Library with Products and their components**

### PLM functions

- Generates a complete bill of materials for orders.
- Components of the Products required are clubbed together in common file(s) based on the material type, grade and thickness, so as to combine different jobs and minimize production cost and wastage.
- Minimizes data entry time.

Order Entry

**LABEL MODULE** is used for printing labels for the Cut-Pieces, as per individual Layouts, for distinguishing different Cut-Pieces from one another after cutting is done.

This is also useful for distinguishing the orders of one client from another in case similar Products are ordered by more than one client.

MAT : MS  
 GRADE : STLGRY  
 Thick : 3.15  
 SIZE : 729 X 663  
 DESCR : SIDE PNL  
 PRODUCT : CABINET-A  
 CLIENT : ABC & CO

**Hardware Requirements:** Pentium or higher, 32 MB RAM.  
**OS Platform:** WINDOWS 95 / 98 / NT / 2000.

### Special versions available for

- Glass industry.
- Zig-Zag cutting.
- Interfacing with CNC machine.

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