Professional Optimiser – Datasheet PO

Large scale production – with full cost control

This is the most extensive optimising module. It gives full control over costs, cutting constraints and all cutting pattern features including th special requirements of larger scale production.

If it fully integrated with the PQ module (where used) and includes an interface to a large number of proprietry saws.

The overall process is:-

- Enter or Import part sizes
- Optimise
- Send cutting data to saw

Part sizes

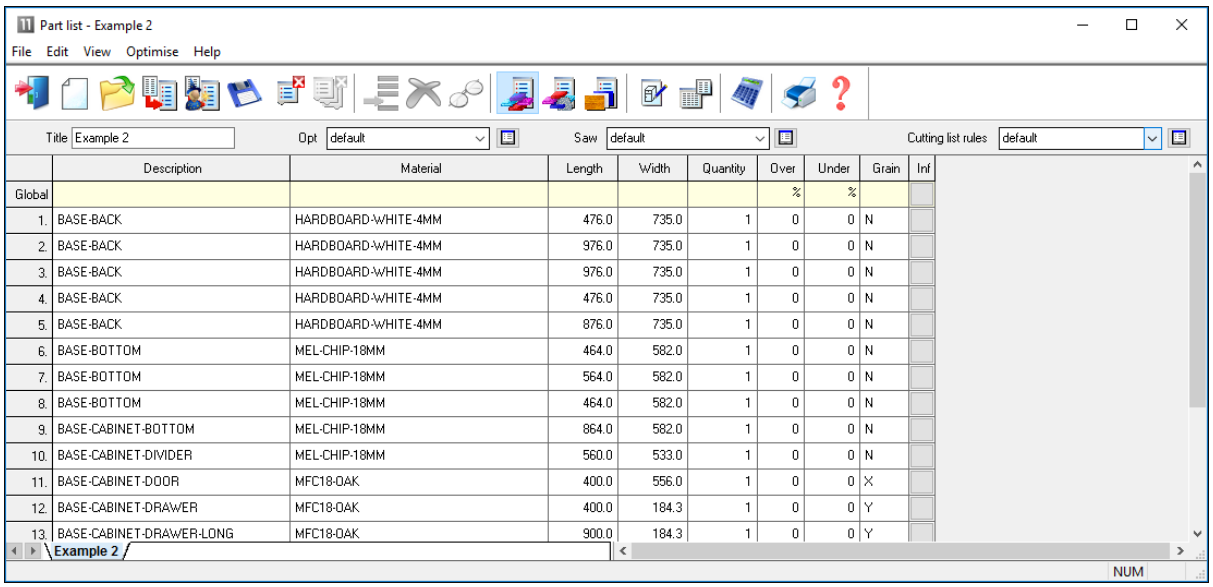
The starting point of optimisation is a list of part sizes. This can be produced in a variety of ways:-

- Enter sizes in the 'Part list' grid
- Calculate part sizes from product requirements (PQ module)
- Import part sizes from external files or systems

Some lists can have extra custom fields with information for reports of for part labels. The system also provides a set of pre-defined fields which automatically calculate extra data.

The sizes entered are typically the finished sizes and the part list includes options to adjust the sizes to allow for edging, laminates and re-trimming.

The part list includes a full set of options to edit or insert trims, re-order and change the list.

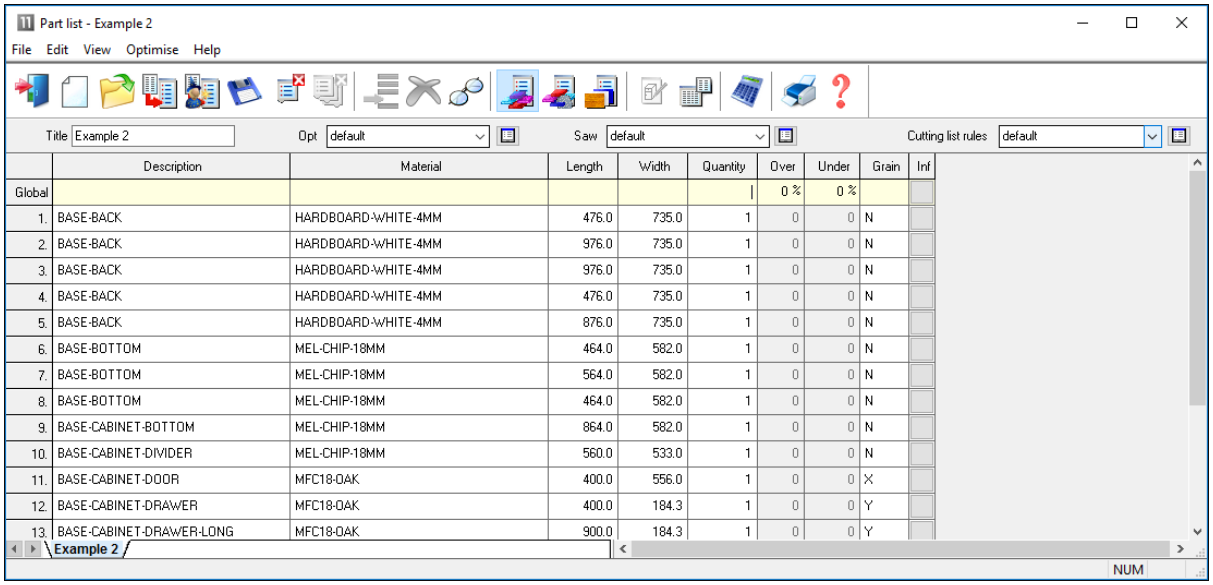


	Description	Material	Length	Width	Quantity	Over	Under	Grain	Inf
Global						%	%		
1.	BASE-BACK	HARDBOARD-WHITE-4MM	476.0	735.0	1	0	0	N	
2.	BASE-BACK	HARDBOARD-WHITE-4MM	976.0	735.0	1	0	0	N	
3.	BASE-BACK	HARDBOARD-WHITE-4MM	976.0	735.0	1	0	0	N	
4.	BASE-BACK	HARDBOARD-WHITE-4MM	476.0	735.0	1	0	0	N	
5.	BASE-BACK	HARDBOARD-WHITE-4MM	876.0	735.0	1	0	0	N	
6.	BASE-BOTTOM	MEL-CHIP-18MM	464.0	582.0	1	0	0	N	
7.	BASE-BOTTOM	MEL-CHIP-18MM	564.0	582.0	1	0	0	N	
8.	BASE-BOTTOM	MEL-CHIP-18MM	464.0	582.0	1	0	0	N	
9.	BASE-CABINET-BOTTOM	MEL-CHIP-18MM	864.0	582.0	1	0	0	N	
10.	BASE-CABINET-DIVIDER	MEL-CHIP-18MM	560.0	533.0	1	0	0	N	
11.	BASE-CABINET-DOOR	MFC18-OAK	400.0	556.0	1	0	0	X	
12.	BASE-CABINET-DRAWER	MFC18-OAK	400.0	184.3	1	0	0	Y	
13.	BASE-CABINET-DRAWER-LONG	MFC18-OAK	900.0	184.3	1	0	0	Y	

In this example there are a large number of part sizes required in small quantitied. Each part has a material code which matches the part to the available materials.

The number ofcolumns in use can be adjusted to match the details required and help with data entry.

The global line at the top of the list allows entry vales that apply to the whole list and helps to speed up data entry and avoid mistakes.

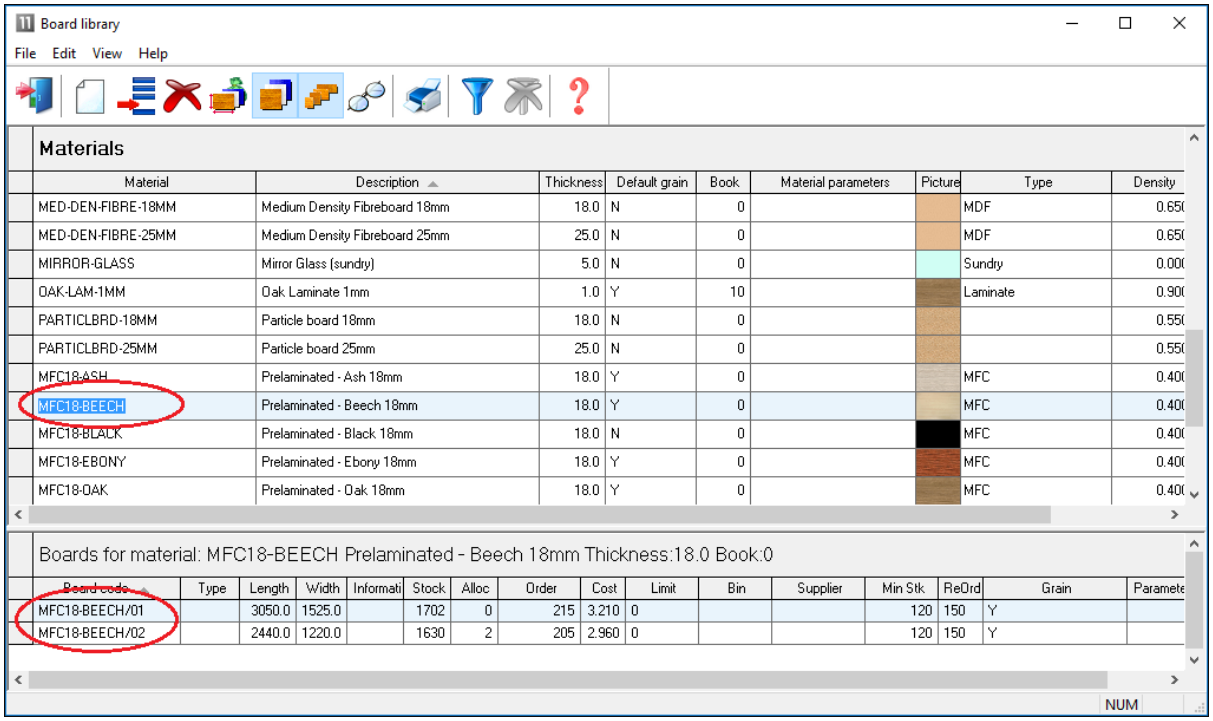


	Description	Material	Length	Width	Quantity	Over	Under	Grain	Inf
Global						0 %	0 %		
1.	BASE-BACK	HARDBOARD-WHITE-4MM	476.0	735.0	1	0	0	N	
2.	BASE-BACK	HARDBOARD-WHITE-4MM	976.0	735.0	1	0	0	N	
3.	BASE-BACK	HARDBOARD-WHITE-4MM	976.0	735.0	1	0	0	N	
4.	BASE-BACK	HARDBOARD-WHITE-4MM	476.0	735.0	1	0	0	N	
5.	BASE-BACK	HARDBOARD-WHITE-4MM	876.0	735.0	1	0	0	N	
6.	BASE-BOTTOM	MEL-CHIP-18MM	464.0	582.0	1	0	0	N	
7.	BASE-BOTTOM	MEL-CHIP-18MM	564.0	582.0	1	0	0	N	
8.	BASE-BOTTOM	MEL-CHIP-18MM	464.0	582.0	1	0	0	N	
9.	BASE-CABINET-BOTTOM	MEL-CHIP-18MM	864.0	582.0	1	0	0	N	
10.	BASE-CABINET-DIVIDER	MEL-CHIP-18MM	560.0	533.0	1	0	0	N	
11.	BASE-CABINET-DOOR	MFC18-OAK	400.0	556.0	1	0	0	X	
12.	BASE-CABINET-DRAWER	MFC18-OAK	400.0	184.3	1	0	0	Y	
13.	BASE-CABINET-DRAWER-LONG	MFC18-OAK	900.0	184.3	1	0	0	Y	

Sizes can be entered in millimeters, decimal inches or fractional inches.

Materials

All materials are stored in the Board library. This is a database of all sheet material and includes quantities and costs. The board library stores records for each material and a record for each board size(including any offcuts) for each material type



Material	Description	Thickness	Default grain	Book	Material parameters	Picture	Type	Density
MED-DEN-FIBRE-18MM	Medium Density Fibreboard 18mm	18.0	N	0			MDF	0.65
MED-DEN-FIBRE-25MM	Medium Density Fibreboard 25mm	25.0	N	0			MDF	0.65
MIRROR-GLASS	Mirror Glass (sundry)	5.0	N	0			Sundry	0.00
OAK-LAM-1MM	Oak Laminate 1mm	1.0	Y	10			Laminate	0.90
PARTICLBRD-18MM	Particle board 18mm	18.0	N	0				0.55
PARTICLBRD-25MM	Particle board 25mm	25.0	N	0				0.55
MFC18-ASH	Prelaminated - Ash 18mm	18.0	Y	0			MFC	0.40
MFC18-BEECH	Prelaminated - Beech 18mm	18.0	Y	0			MFC	0.40
MFC18-BLACK	Prelaminated - Black 18mm	18.0	N	0			MFC	0.40
MFC18-EBONY	Prelaminated - Ebony 18mm	18.0	Y	0			MFC	0.40
MFC18-OAK	Prelaminated - Oak 18mm	18.0	Y	0			MFC	0.40

Board code	Type	Length	Width	Informati	Stock	Alloc	Order	Cost	Limit	Bin	Supplier	Min Stk	ReOrd	Grain	Paramete
MFC18-BEECH/01		3050.0	1525.0		1702	0	215	3.210	0			120	150	Y	
MFC18-BEECH/02		2440.0	1220.0		1630	2	205	2.960	0			120	150	Y	

In this example the material MFC18-Teak has two available board sizes 3050 x 1525 and 2440 x 1220.

The Material column in the part list associates each part with the correct material to use and the optimiser selects the optimum board sizes to use for each job.

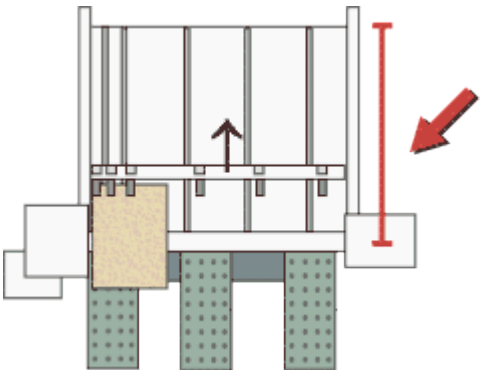
Optimising parameters are used to describe the type of cutting (trims, re-cuts, headcuts …). See the 'Parameters' section for details. Typical parameters are:-

Saw kerf
Front Trims
Rear trims
…

The Front trim parameters, for example, allows the specification of the amount of material including kerf allowed at the front of the board for rips and cross cuts.

Saw parameters are used to describe each saw; overall cutting length, position of clamps, size of waste flap … Typical parameters are:-

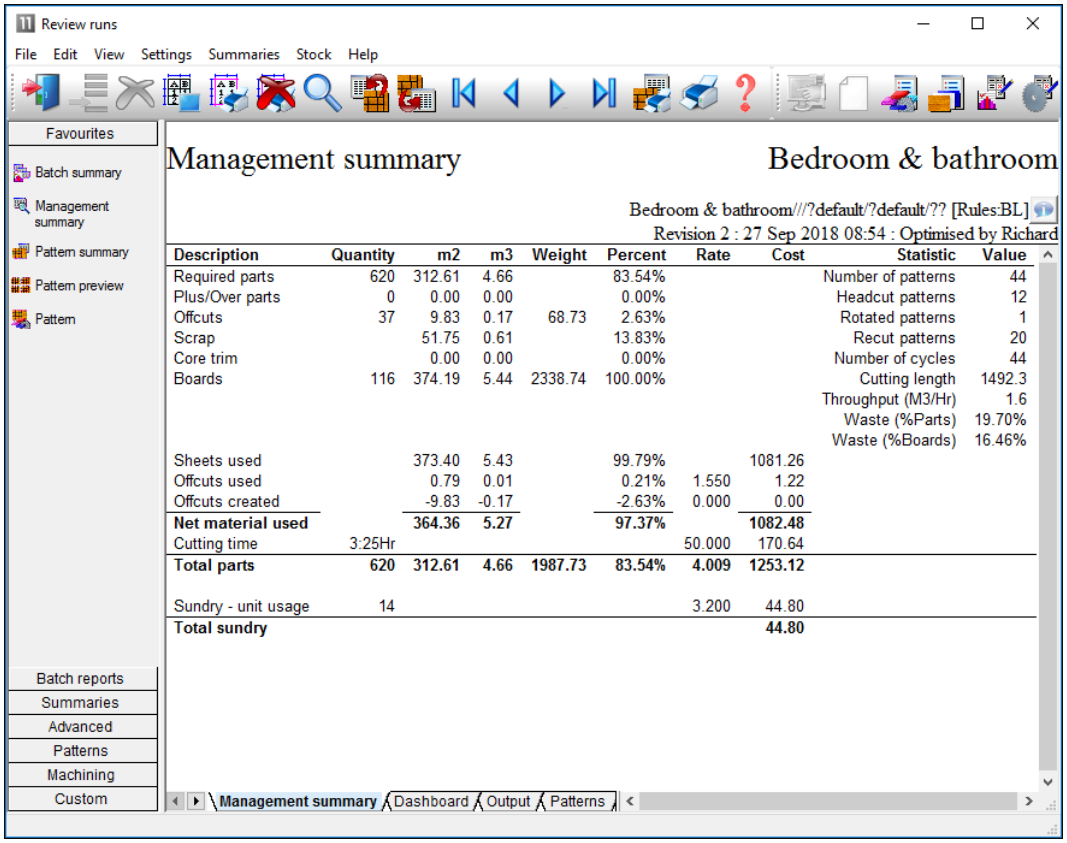
Saw model
Cutting height
Overall cutting length
…



Different parameters list can be set up and used to produce the correct cutting requirements for any list. Typically users set up a handful of parameters lists with commonly used settings and add extra lists for one-off or special jobs.

Optimising

Optimisation produces the pattern layout (balancing cutting times and waste) and a set of details reports for each job The results are shown in the section of the program ‘Review Runs’. Runs are stored and can be easily recalled for review or adjustments.

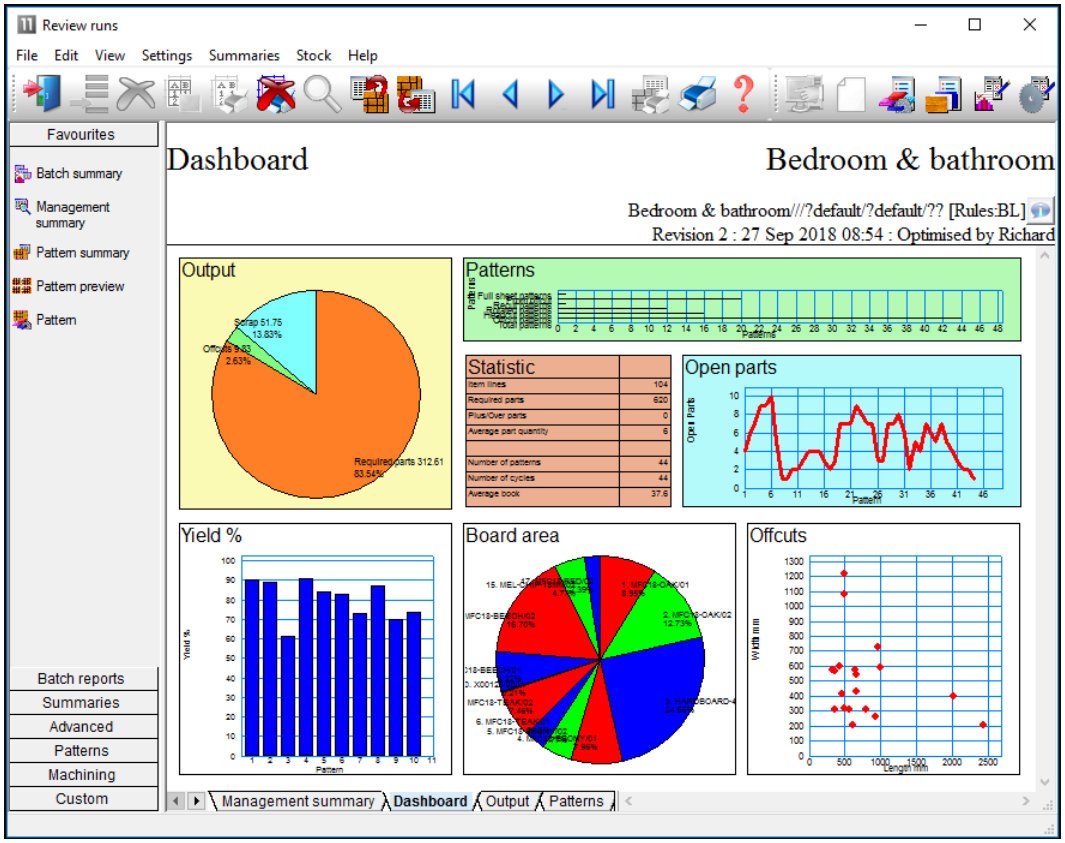


Description	Quantity	m2	m3	Weight	Percent	Rate	Cost	Statistic	Value
Required parts	620	312.61	4.66		83.54%			Number of patterns	44
Plus/Over parts	0	0.00	0.00		0.00%			Headcut patterns	12
Offcuts	37	9.83	0.17	68.73	2.63%			Rotated patterns	1
Scrap		51.75	0.61		13.83%			Recut patterns	20
Core trim		0.00	0.00		0.00%			Number of cycles	44
Boards	116	374.19	5.44	2338.74	100.00%			Cutting length	1492.3
								Throughput (M3/Hr)	1.6
								Waste (%Parts)	19.70%
								Waste (%Boards)	16.46%
Sheets used		373.40	5.43		99.79%		1081.26		
Offcuts used		0.79	0.01		0.21%	1.550	1.22		
Offcuts created		-9.83	-0.17		-2.63%	0.000	0.00		
Net material used		**364.36**	**5.27**		**97.37%**		**1082.48**		
Cutting time	3:25Hr					50.000	170.64		
Total parts	**620**	**312.61**	**4.66**	**1987.73**	**83.54%**	**4.009**	**1253.12**		
Sundry - unit usage	14					3.200	44.80		
Total sundry							**44.80**		

Batch Optimisation

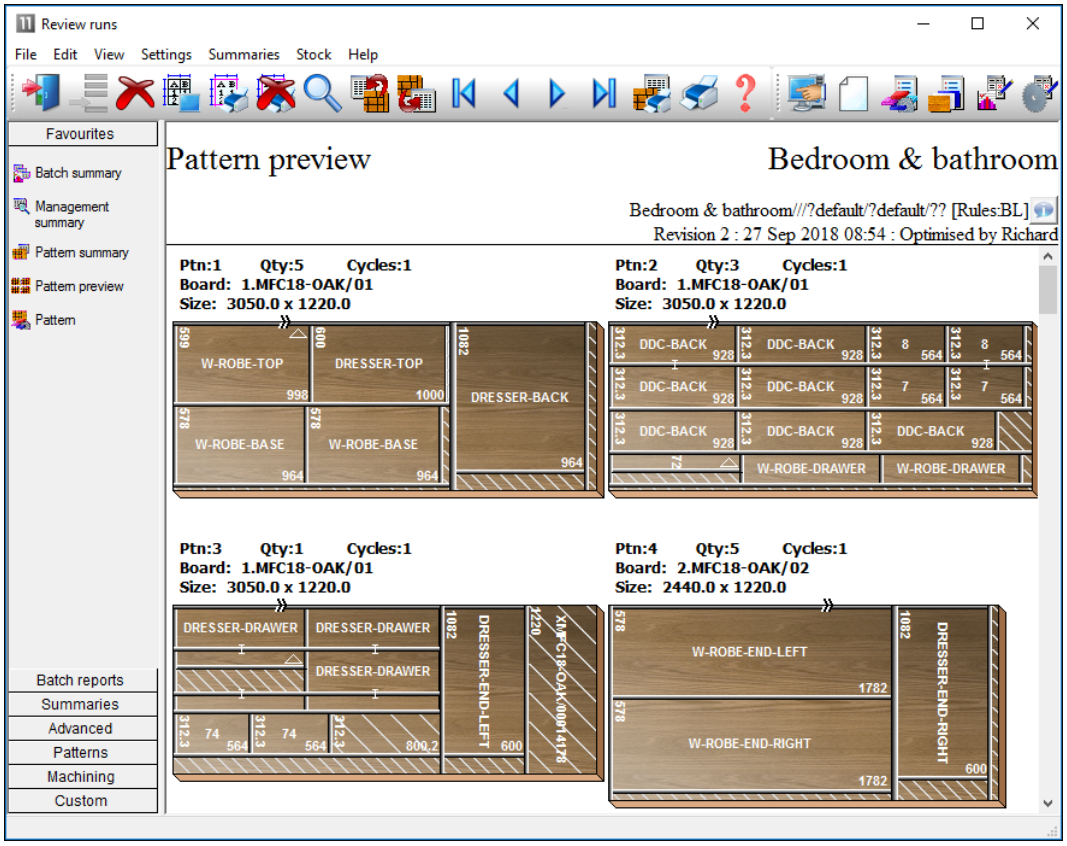
This shows the overall details of a job, yield, costs, type off cutting pattern.

The management summary includes a Dashboard view showing a graphical view of some of the data.



Batch summary

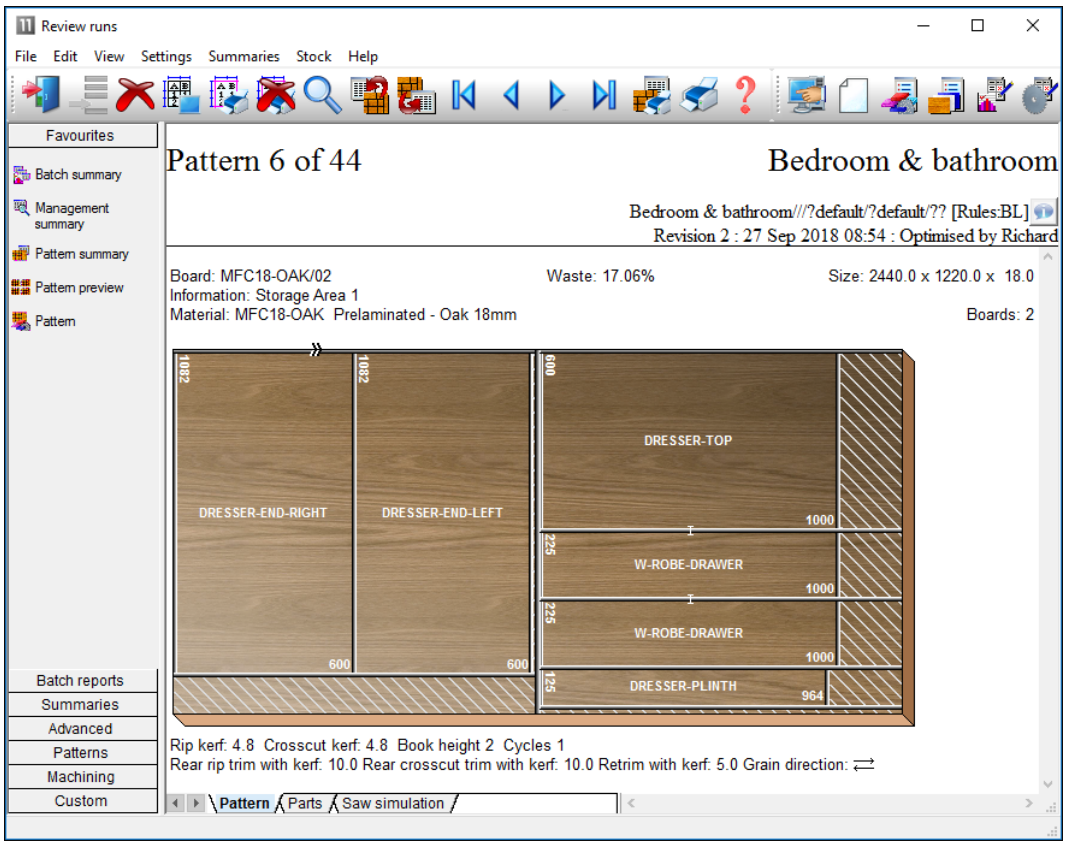
This can be customised for almost any view and to include charts from other summaries. The cutting patterns are shown in a thumbnail overview.



Preview of patterns

Clicking on a thumbnail picture moves to the full screen of each pattern.

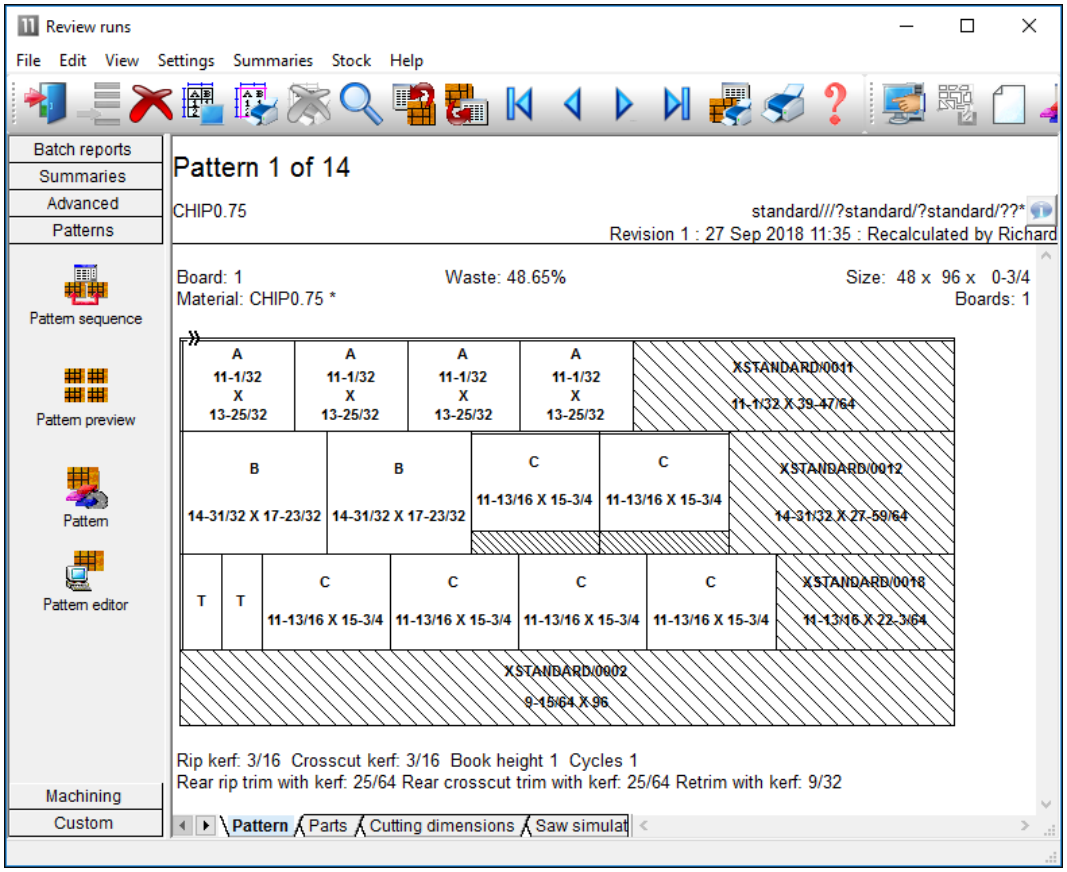
Extra details of each pattern are available on the tabs at the foot of each drawing.



Full details of pattern

All reports can be fully customised and the Form & Design option is available for custom reports - fully integrated into the program.

The program also supports decimal and fractional inches.



Pattern - fractional inches

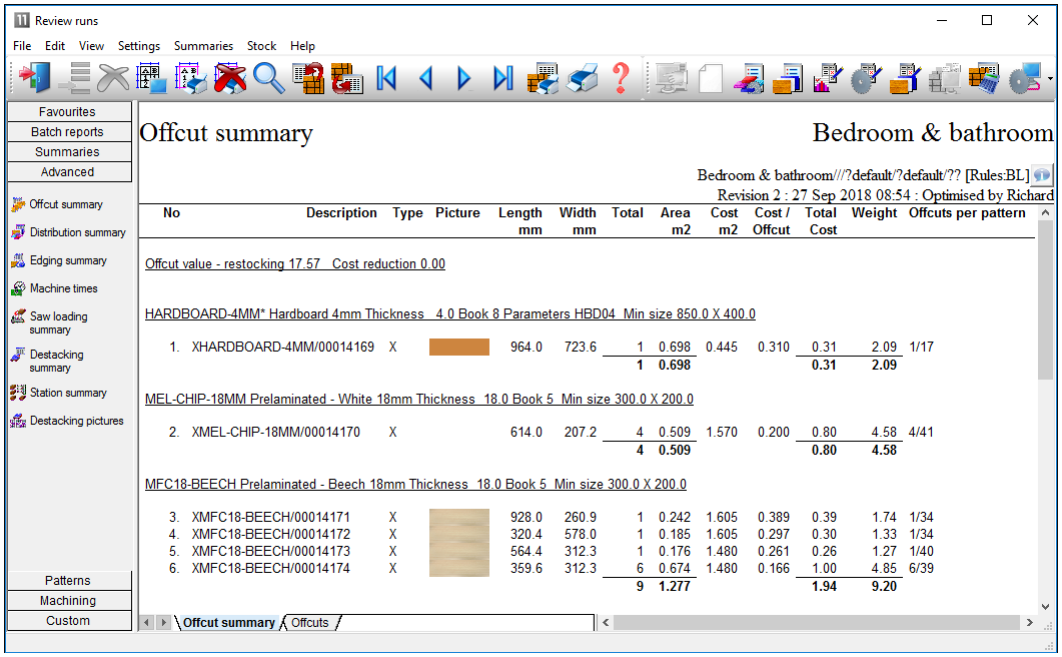
In this example the pattern is shown in an alternative view 'Monochrome'. There are several choices of pattern view.

- Enhanced picture with bitmap or solid colour
- Flat picture with bitmap or solid colour
- Picture with colour for different part type (recut, plus part, offcut …)
- Monochrom picture

There are a range of reports on the job, including, offcuts, costs, board usage.

Offcuts

Shows the offcuts produced in a run.

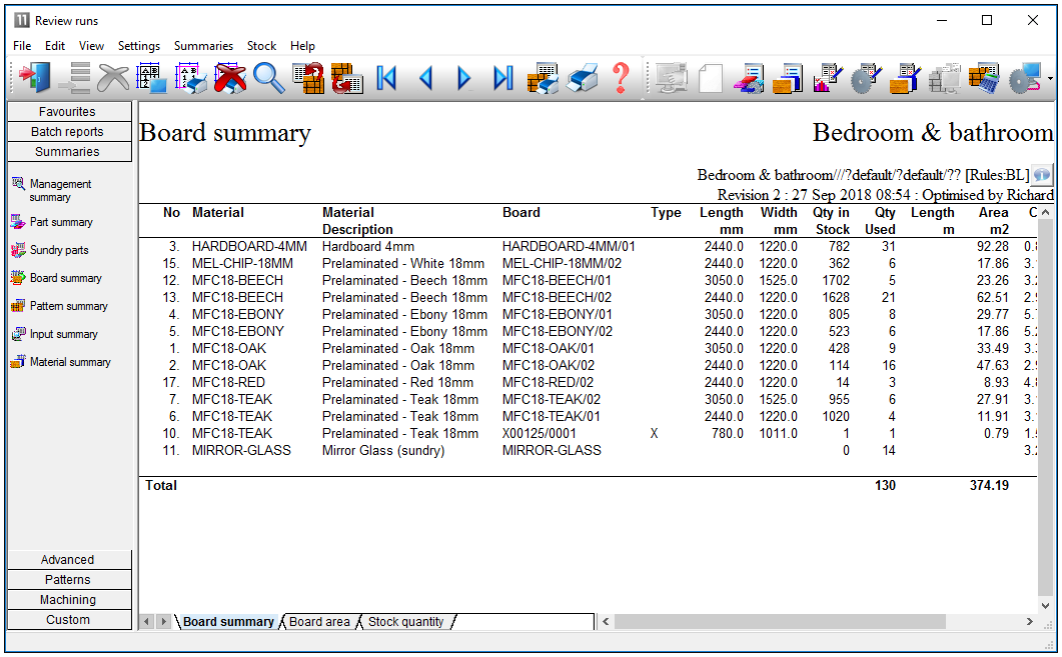


Review runs Offcut summary

Offcuts can be returned to the board library for use in later runs with the Stock control module.

Boards

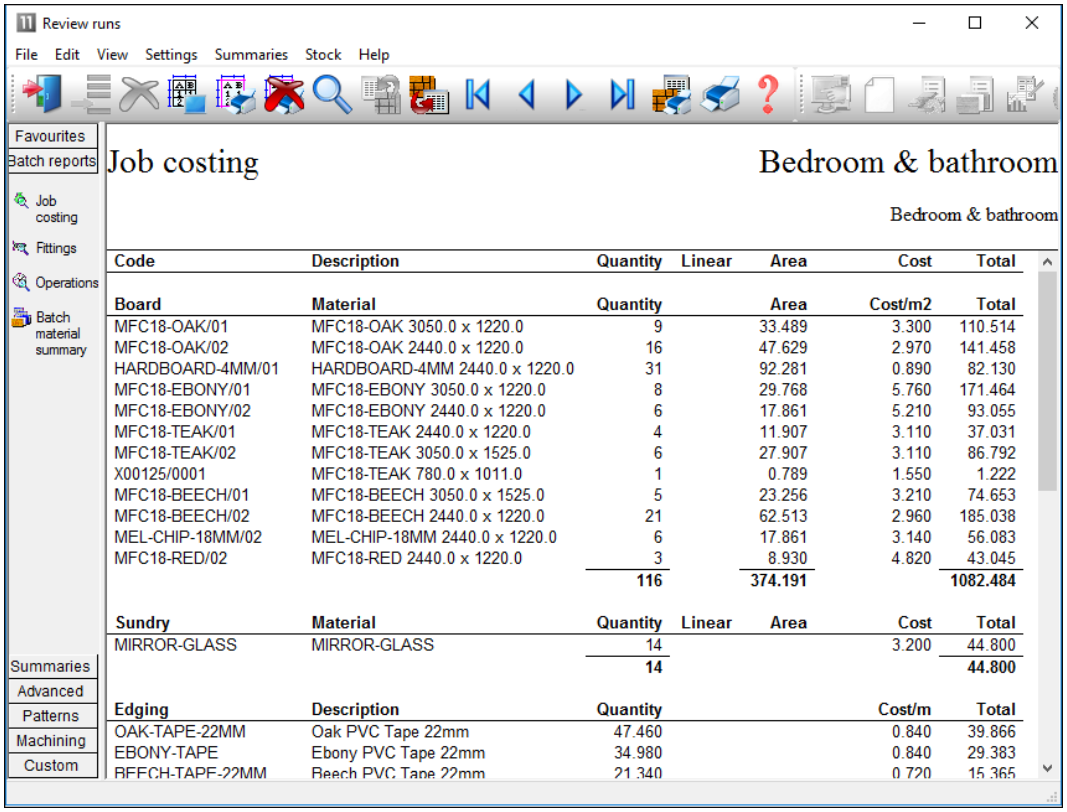
This shows the amount of each board size used in a run.



Review runs Board summary

Job costing

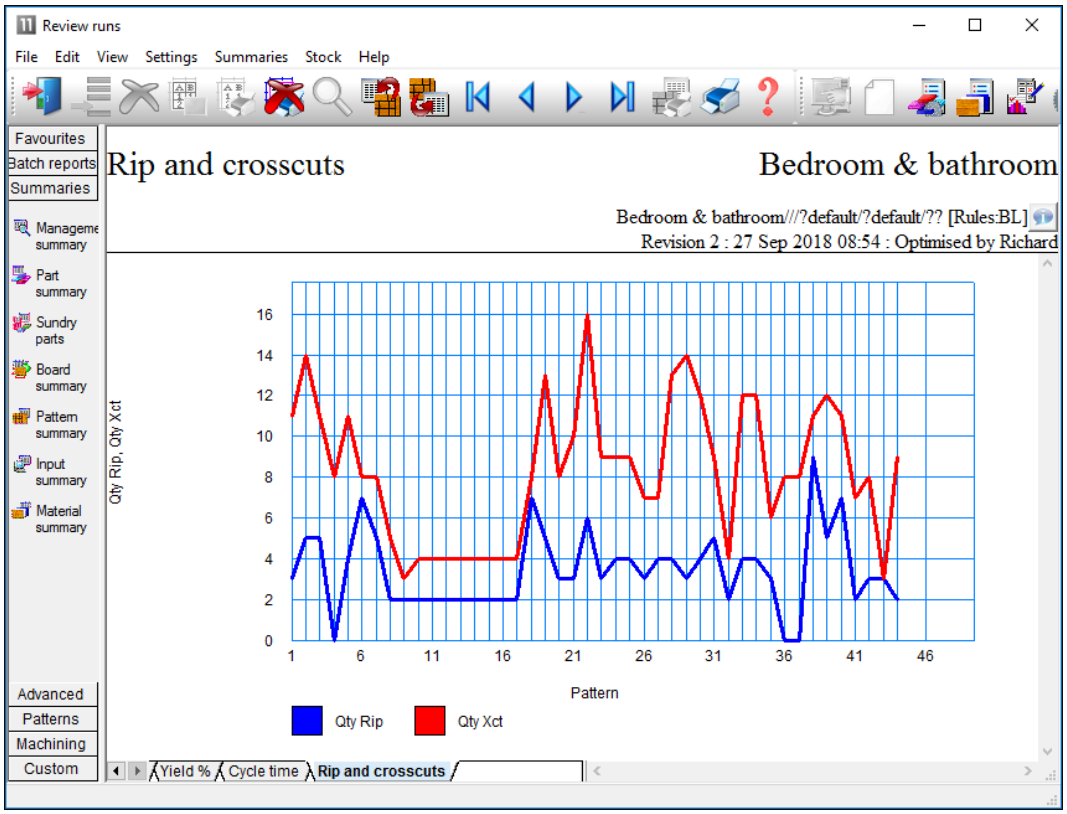
A summary of all the cost centres for a job.



Review runs job costing

Charts and Analysis

Most reports include options to add a graphical view or chart of the report data. Up to 3 custom charts can be defined for each summary.



Review runs chart

The data to highlight in this way typically varies from company to company so there are full facilities for defining data to include and style of chart for each report in Review runs (*Settings - Chart settings*)

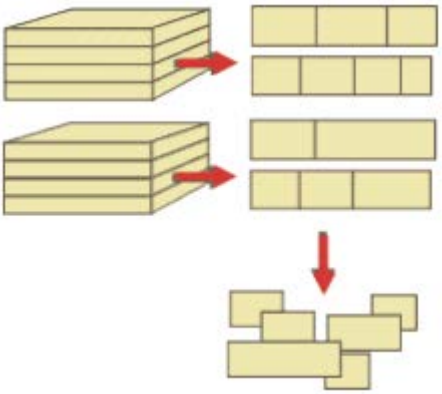
Professional optimising

The professional optimiser is designed for larger volumes of parts – up to the very largest; it balances the cutting time and costs against material cost to produce an effective solution.

The optimiser includes many specialist features which are often needed with volume production:

- Over production
- 'Strip production' this option to allow ripping and cross cutting to appear on separate patterns.

This is often required where the cutting line separates ripping and cross cutting across separate saws (e.g. Kitchen worktops).



- Option to restrict the number of pallet groups

The number of parts not completed at any time is kept below a fixed value. This helps wiff offstacking and later production processes where there are large volumes of parts.

- Free cut analysis

This determines the optimum position for cutting jumbo boards – a free cut to split boards is often an option for those using high board volumes.

- Optimising parameters to control the number of different board sizes used and the order of the part production (priority). These are often more important for volume production.

Comparision of Optimisers

	Standard	Professional
Part list	**SO**	**PO**
Metric or imperial dimensions	•	•
Grain/cross grain or ungrained parts	•	•
Exact quantity or over/under production	•	•
Maximum part sizes per part list (undivided)	20,000	20,000
Mixed material lists – unlimited materials per job	•	•
User-defined part list information fields	99	99

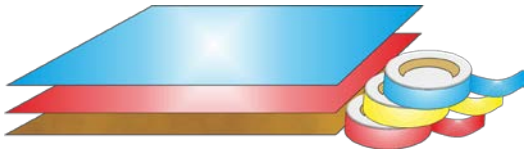
Configurable part list editor	•	•
Grain match – master part templates	•	•
Import		
Import part/cutting lists from user-defined csv, xls(x)	•	•
Import board lists from user defined csv, xls(x) files	•	•
Import patterns – from PTX	•	•
Cutting List		
Multiple boards & offcut sizes per job	•	•
Cutting list rules – user defined tables	•	•
Allow alternative materials per part	•	•
Optimising		
Small/medium quantity sheet optimiser	•	•
Timber/Workshop cross cut optimsier	•	•
Strip production optimiser		•
Full sheet over production optimiser		•
Volume optimisation		•
Auto optimiser selection		•
Pattern complexity controls	Limited	•
Saw kerf & trim settings	•	•
Separate kerf for rip and crosscut saws		•
Optimisation based on material cost	•	•
Optimisation based on cost(material + cutting time)		•
Vertical strips in head cut patterns		•
Maximum part sizes per optimisation	10,000	10,000
Maximum pieces per optimisation	10,000	Unlimited
Faster optimisation with multi-core processors	•	•
Batch optimisation multiple lists- up to 250 jobs	•	•
strip production optimiser		•
Full sheet over production optimiser		•
Volume optimisation		•
Extended optimisation parameters	Limited	•
Control of open parts or pallet groups		•
Control of 'plus part' preference		•
Free cut analysis		•
Material parameters	•	•
Mixed material stacks		•
Re-optimisation of remaining (unproduced) parts		•
Export		
Export report data to Access database	•	•
Export report data to SQLite database	•	•
Export Summaries to XLS(X) files	•	•
Export summaries to pdf	•	•
Export patterns to DXF files	•	•
Reports, forms and labels		
Batch, job summaries	•	•
Part, Baord, Material and Pattern summaries	•	•
Offcut summary	•	•
Part costings – Weight calculations	•	•
Cutting time calculations/saw simulation report	•	•

Dashboard – graphs and bar charts	•	•
Configurable reports & summaries	•	•
Form design – part lists, patterns	•	•
Label design – inlcudes barcodes and pictures	•	•
Labels for parts and offcuts	•	•
Stock		
Material library with boards and offcuts	•	•
Automatic stock issue from jobs	•	•
Import adjustment from file	•	•
Destacking and palletisation		•
Patterns		
Thumbnail preview of patterns	•	•
Pattern display – colour coded or material texture	•	•
Pattern editor – add, move delete parts	•	•
Cutting instructions for saw operator	•	•
Pattern library – standard templates – grain match ptns	•	•
Manual patterns	•	•
Beam saw interface		
Transfer to Single saw- Cadmatic 4 only	•	•
Transfer to online label PC	•	•
Transfer to single saws – most types	•	•
Transfer to Angular saws		•
Transfer to Weeke Cutting centre		•
Transfer to Multiple saw/Multiple saw parameter files	•	•
Tension trims, splite waste, waste strip setting	•	•
Support for PCD device, split program fence	•	•
Support for combiTec – recut processing parameters		•
General		
File Maintenance – copy/delete files	•	•
Backup & restore data	•	•
Integrated local (offline) comprehensive help	•	•
Link to Web site	•	•
User Profiles	•	•
Win 7/Win8/Win 10 platforms	•	•

The following features come as standard with the Professional Optimiser.

Edges & Laminating

Accurate application and costing of edge-banding materials



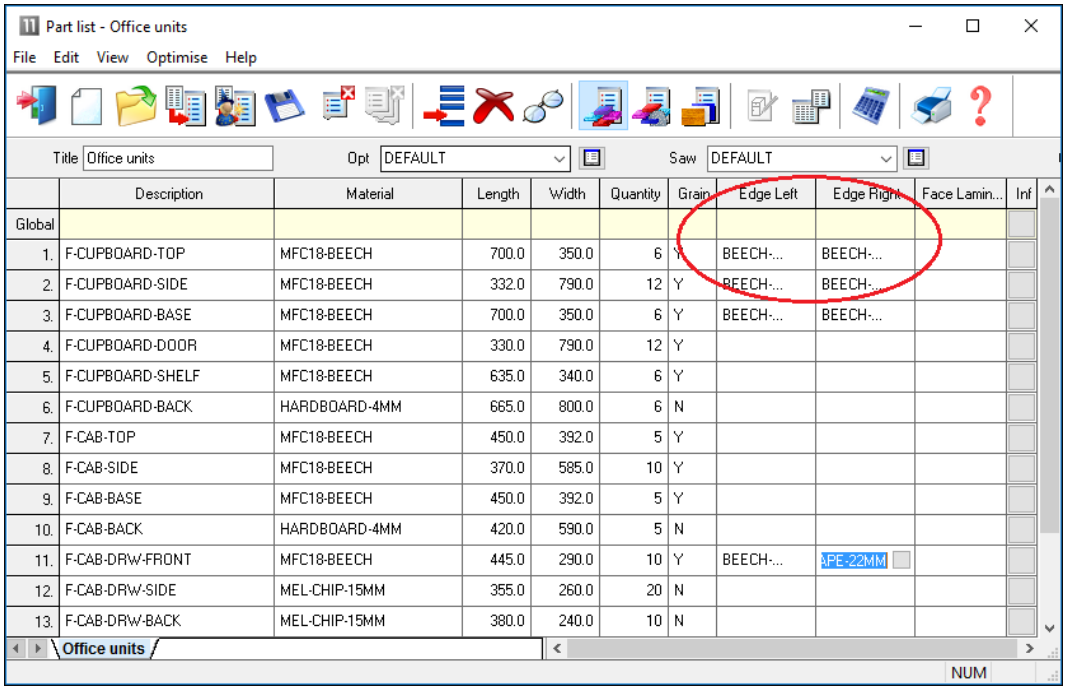
The program provides a full set of options to deal with with edged, trimmed and laminated parts. A wide variety of edging methods are:-

```
- Tape
- Laminate strips
- Solid lipping
- Postform edging
- Bullnose edging
- Laminate front and back
- Core trimming (cutting back before edging)
- Edge before laminating
```

The edging requirement is set at the part list and can be set for each part. The program automatically calculates the correct cutting sizes required to meet the finished size with edging set at the part list.

Sizes are entered (or imported) via the Part list.

These are typically the finished sizes but where there is edging and laminating the finished size has to be adjusted to the cut size before being sent to the saw.

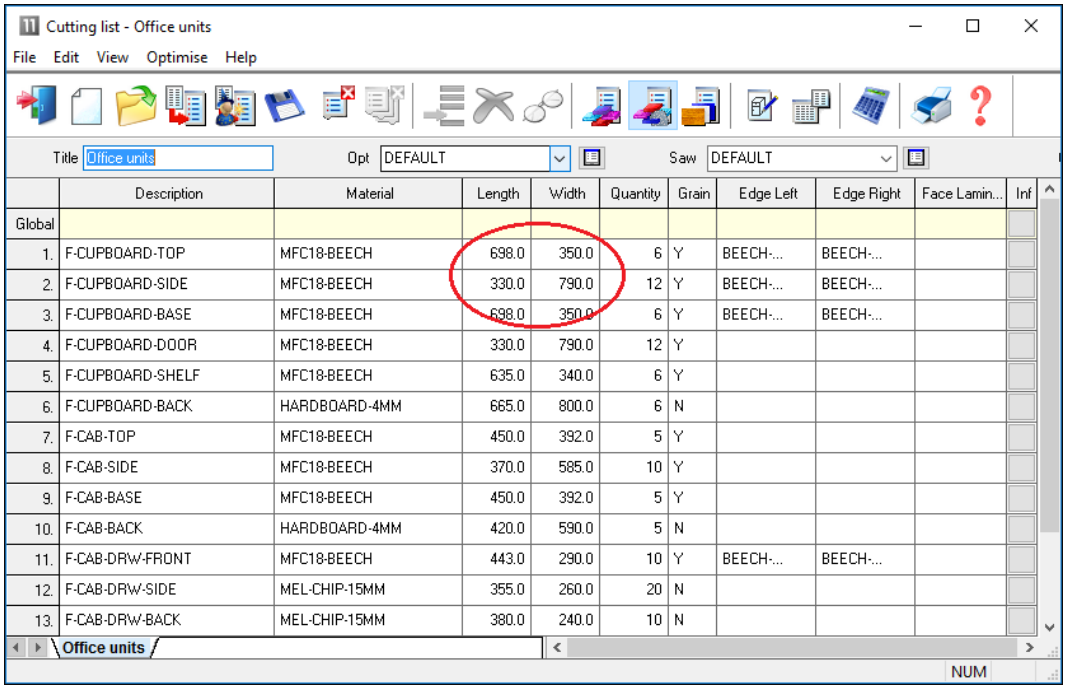


	Description	Material	Length	Width	Quantity	Grain	Edge Left	Edge Right	Face Lamin...	Inf
Global										
1.	F-CUPBOARD-TOP	MFC18-BEECH	700.0	350.0	6	Y	BEECH-...	BEECH-...		
2.	F-CUPBOARD-SIDE	MFC18-BEECH	332.0	790.0	12	Y	BEECH-...	BEECH-...		
3.	F-CUPBOARD-BASE	MFC18-BEECH	700.0	350.0	6	Y	BEECH-...	BEECH-...		
4.	F-CUPBOARD-DOOR	MFC18-BEECH	330.0	790.0	12	Y				
5.	F-CUPBOARD-SHELF	MFC18-BEECH	635.0	340.0	6	Y				
6.	F-CUPBOARD-BACK	HARDBOARD-4MM	665.0	800.0	6	N				
7.	F-CAB-TOP	MFC18-BEECH	450.0	392.0	5	Y				
8.	F-CAB-SIDE	MFC18-BEECH	370.0	585.0	10	Y				
9.	F-CAB-BASE	MFC18-BEECH	450.0	392.0	5	Y				
10.	F-CAB-BACK	HARDBOARD-4MM	420.0	590.0	5	N				
11.	F-CAB-DRW-FRONT	MFC18-BEECH	445.0	290.0	10	Y	BEECH-...	APE-22MM		
12.	F-CAB-DRW-SIDE	MEL-CHIP-15MM	355.0	260.0	20	N				
13.	F-CAB-DRW-BACK	MEL-CHIP-15MM	380.0	240.0	10	N				

Edging - Part list

A set of extra fields (called Information boxes) extend the Part list to allow for the entry of the edging code for each edge of each part. For example, in the above example items such as Top, Side and Base have edging material on some of the edges.

The correct cutting sizes are produced automatically.



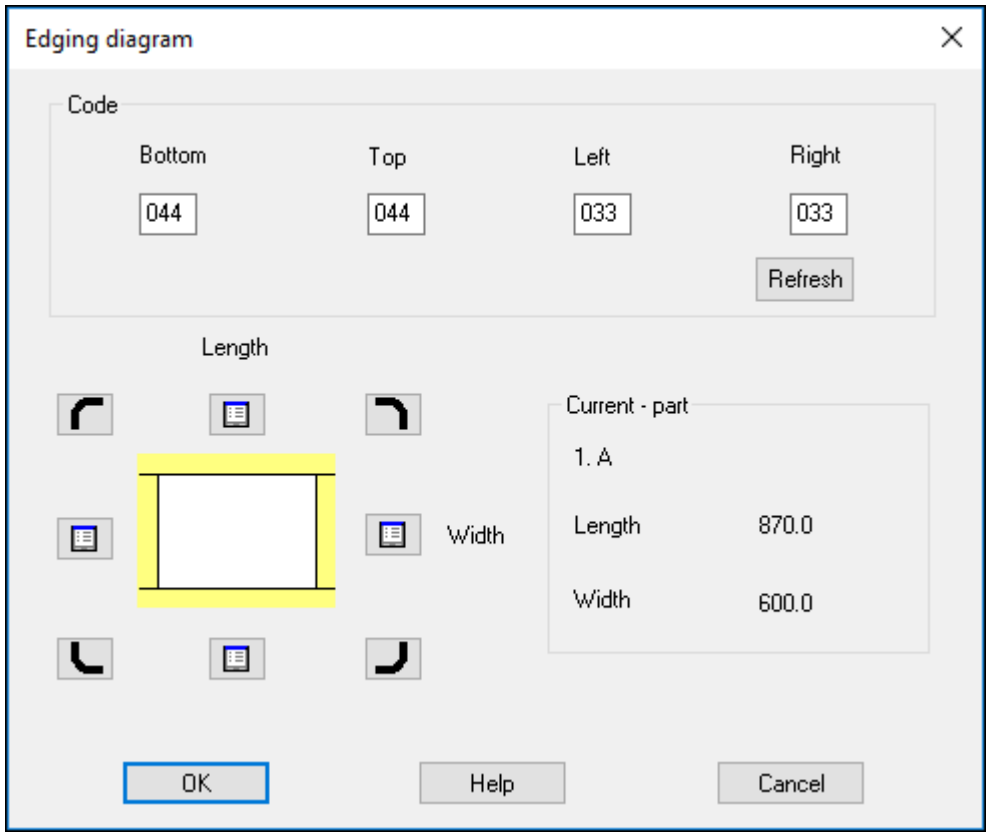
	Description	Material	Length	Width	Quantity	Grain	Edge Left	Edge Right	Face Lamin...	Inf
Global										
1.	F-CUPBOARD-TOP	MFC18-BEECH	698.0	350.0	6	Y	BEECH-...	BEECH-...		
2.	F-CUPBOARD-SIDE	MFC18-BEECH	330.0	790.0	12	Y	BEECH-...	BEECH-...		
3.	F-CUPBOARD-BASE	MFC18-BEECH	698.0	350.0	6	Y	BEECH-...	BEECH-...		
4.	F-CUPBOARD-DOOR	MFC18-BEECH	330.0	790.0	12	Y				
5.	F-CUPBOARD-SHELF	MFC18-BEECH	635.0	340.0	6	Y				
6.	F-CUPBOARD-BACK	HARDBOARD-4MM	665.0	800.0	6	N				
7.	F-CAB-TOP	MFC18-BEECH	450.0	392.0	5	Y				
8.	F-CAB-SIDE	MFC18-BEECH	370.0	585.0	10	Y				
9.	F-CAB-BASE	MFC18-BEECH	450.0	392.0	5	Y				
10.	F-CAB-BACK	HARDBOARD-4MM	420.0	590.0	5	N				
11.	F-CAB-DRW-FRONT	MFC18-BEECH	443.0	290.0	10	Y	BEECH-...	BEECH-...		
12.	F-CAB-DRW-SIDE	MEL-CHIP-15MM	355.0	260.0	20	N				
13.	F-CAB-DRW-BACK	MEL-CHIP-15MM	380.0	240.0	10	N				

Edging - Cutting list

For example, a finished length of 332.0 mm requires a cutting size of 330.0 mm if the part is edged by (2mm) tape on each length edge.

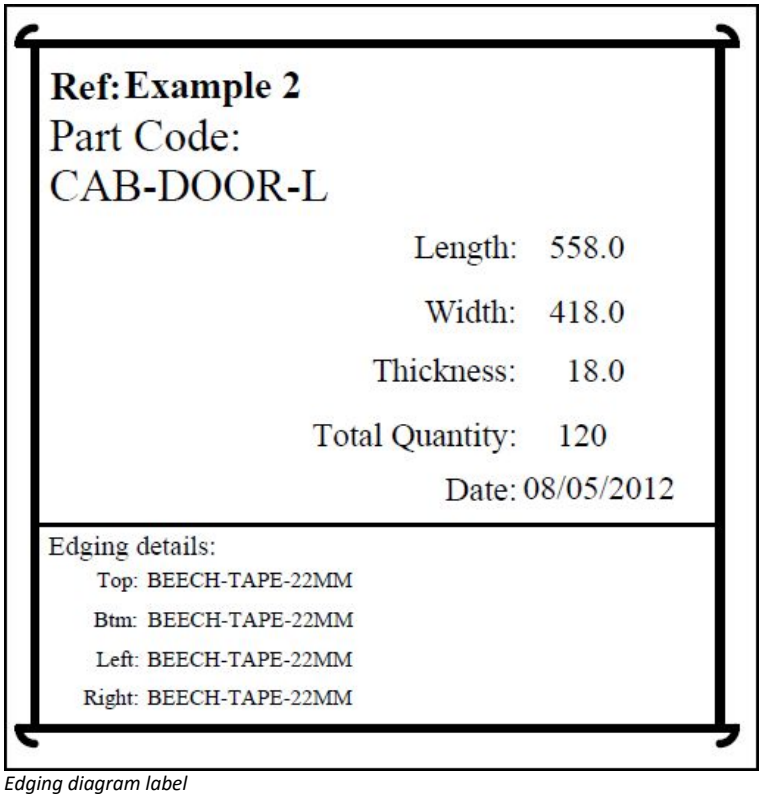
The part list can include a field for describing the Edge diagram.

This field can be used to set how adjoining edge pieces butt on to each other or whether they are mitred.



Edging diagram

This can be used when printing labels for edging to show on the label (at the Edgebander) exactly how the edging is applied.



Edging diagram label

The edging diagram can be included on each part label to show clearly how the edging is produced. This is available with:-

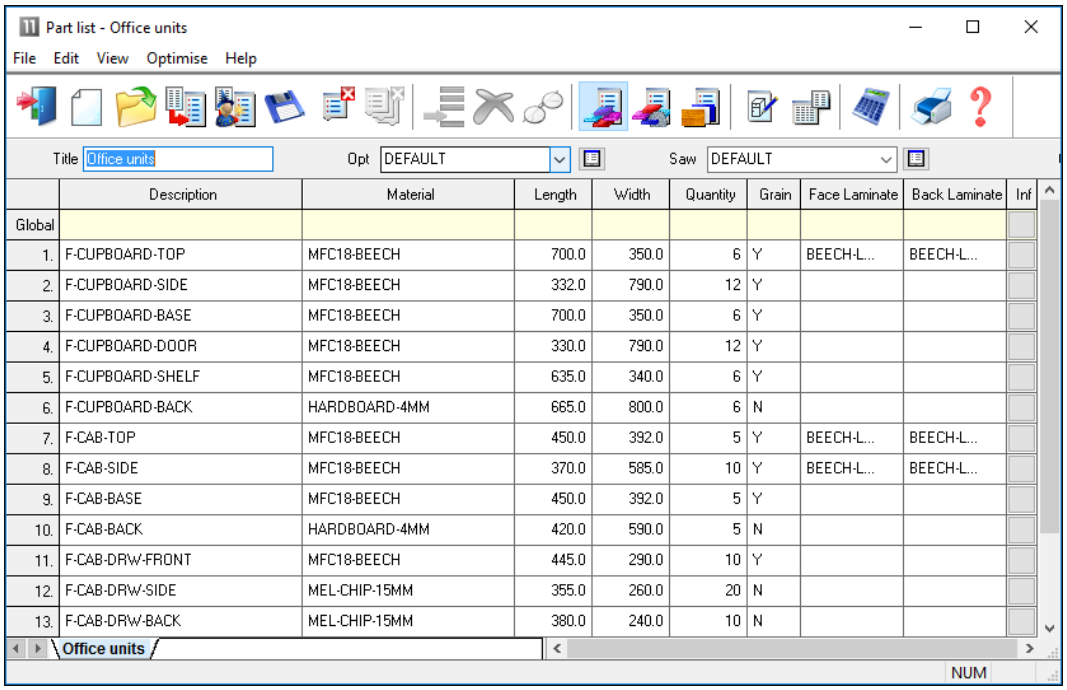
- Printing labels at the Office
- Printing labels at the Saw (Online label PC)
- Printing labels at the Saw (Cadmatic saw controller)

For the Cadmatic the information is passed to the Cadmatic controller on transfer of data to the saw.

- With the Parts & Labels module the edging requirements can be printed on a label as a bar code and used for processing at the edgebander after cutting.

Laminating

The part list can also include fields for laminating one or both sides of a part.

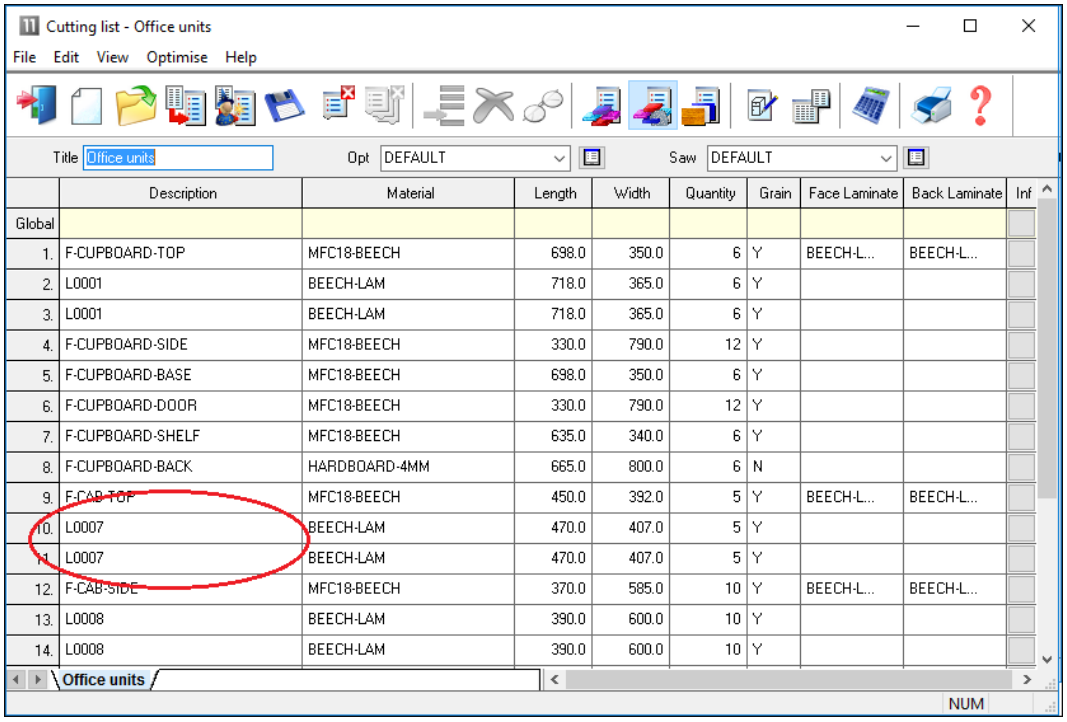


	Description	Material	Length	Width	Quantity	Grain	Face Laminate	Back Laminate	Inf
Global									
1.	F-CUPBOARD-TOP	MFC18-BEECH	700.0	350.0	6	Y	BEECH-L...	BEECH-L...	
2.	F-CUPBOARD-SIDE	MFC18-BEECH	332.0	790.0	12	Y			
3.	F-CUPBOARD-BASE	MFC18-BEECH	700.0	350.0	6	Y			
4.	F-CUPBOARD-DOOR	MFC18-BEECH	330.0	790.0	12	Y			
5.	F-CUPBOARD-SHELF	MFC18-BEECH	635.0	340.0	6	Y			
6.	F-CUPBOARD-BACK	HARDBOARD-4MM	665.0	800.0	6	N			
7.	F-CAB-TOP	MFC18-BEECH	450.0	392.0	5	Y	BEECH-L...	BEECH-L...	
8.	F-CAB-SIDE	MFC18-BEECH	370.0	585.0	10	Y	BEECH-L...	BEECH-L...	
9.	F-CAB-BASE	MFC18-BEECH	450.0	392.0	5	Y			
10.	F-CAB-BACK	HARDBOARD-4MM	420.0	590.0	5	N			
11.	F-CAB-DRW-FRONT	MFC18-BEECH	445.0	290.0	10	Y			
12.	F-CAB-DRW-SIDE	MEL-CHIP-15MM	355.0	260.0	20	N			
13.	F-CAB-DRW-BACK	MEL-CHIP-15MM	380.0	240.0	10	N			

Laminates - part list

The program automatically adds extra items to the cutting list (cutting requirement) to allow for the laminate pieces required.

The laminate size is adjusted to allow for trimming as required.

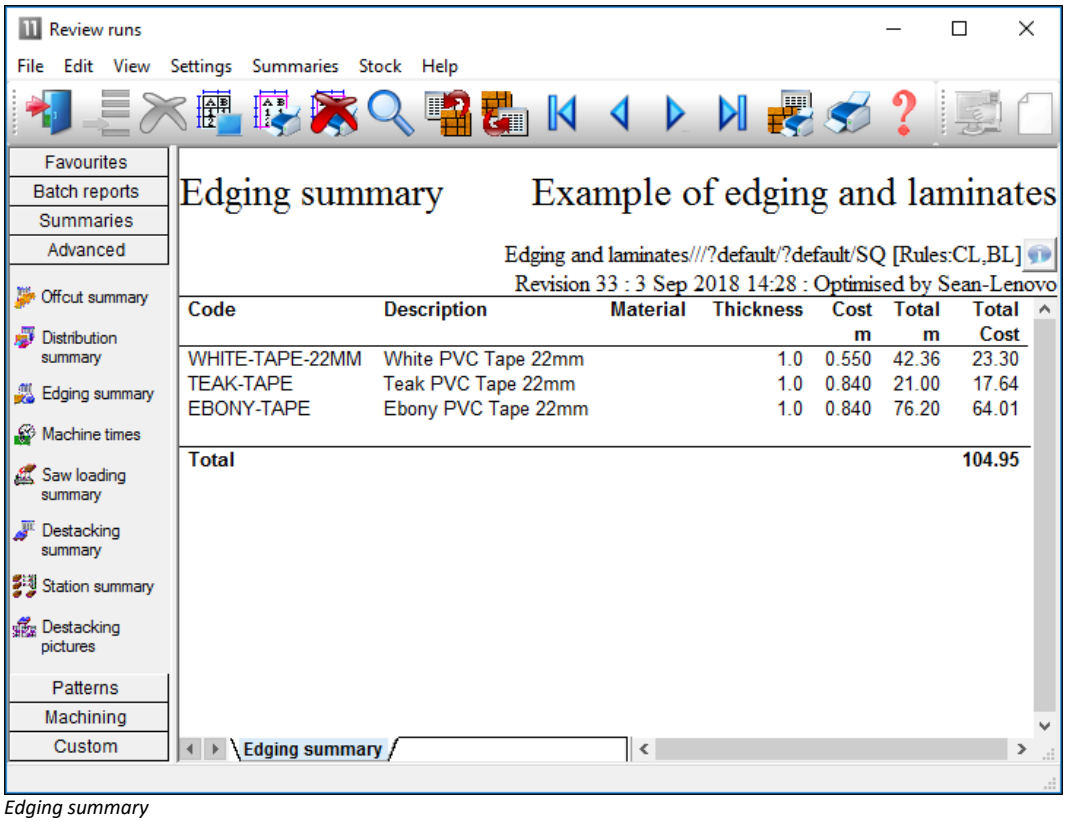


	Description	Material	Length	Width	Quantity	Grain	Face Laminate	Back Laminate	Inf
Global									
1.	F-CUPBOARD-TOP	MFC18-BEECH	698.0	350.0	6	Y	BEECH-L...	BEECH-L...	
2.	L0001	BEECH-LAM	718.0	365.0	6	Y			
3.	L0001	BEECH-LAM	718.0	365.0	6	Y			
4.	F-CUPBOARD-SIDE	MFC18-BEECH	330.0	790.0	12	Y			
5.	F-CUPBOARD-BASE	MFC18-BEECH	698.0	350.0	6	Y			
6.	F-CUPBOARD-DOOR	MFC18-BEECH	330.0	790.0	12	Y			
7.	F-CUPBOARD-SHELF	MFC18-BEECH	635.0	340.0	6	Y			
8.	F-CUPBOARD-BACK	HARDBOARD-4MM	665.0	800.0	6	N			
9.	F-CAB-TOP	MFC18-BEECH	450.0	392.0	5	Y	BEECH-L...	BEECH-L...	
10.	L0007	BEECH-LAM	470.0	407.0	5	Y			
11.	L0007	BEECH-LAM	470.0	407.0	5	Y			
12.	F-CAB-SIDE	MFC18-BEECH	370.0	585.0	10	Y	BEECH-L...	BEECH-L...	
13.	L0008	BEECH-LAM	390.0	600.0	10	Y			
14.	L0008	BEECH-LAM	390.0	600.0	10	Y			

Laminates - cutting list

Edging summary and costs

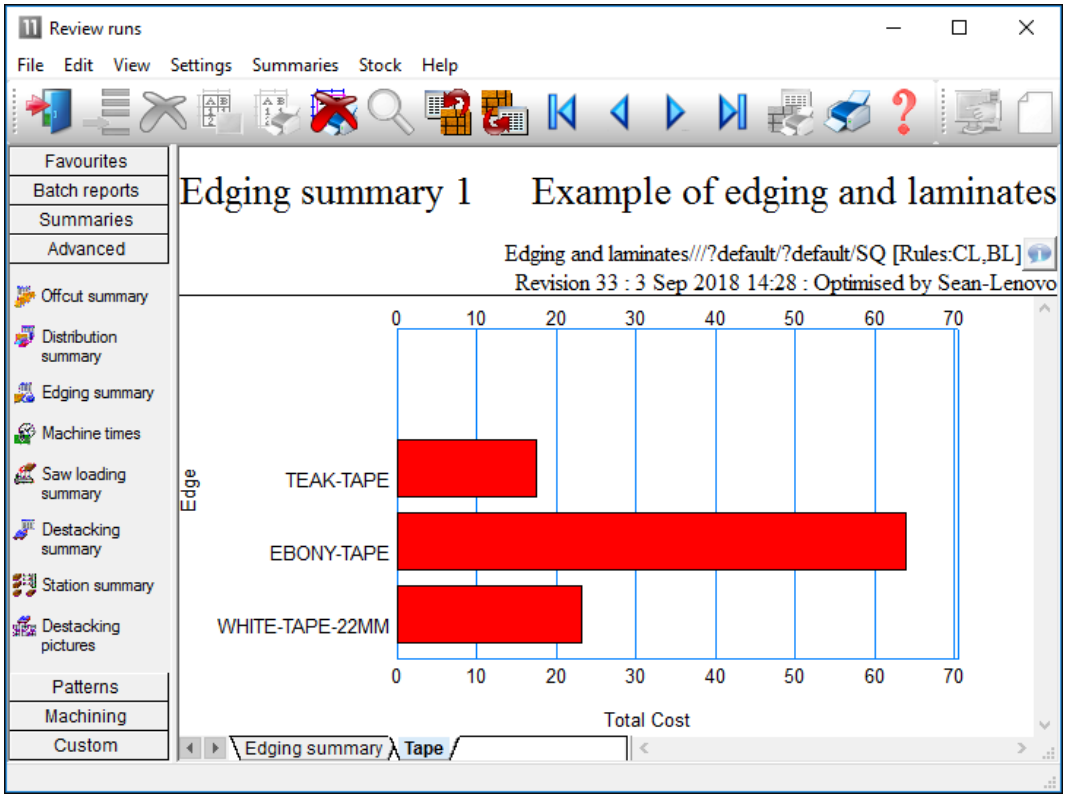
The edging summary gives full details of the edging requirements including the costs.



Code	Description	Material	Thickness	Cost m	Total m	Total Cost
WHITE-TAPE-22MM	White PVC Tape 22mm		1.0	0.550	42.36	23.30
TEAK-TAPE	Teak PVC Tape 22mm		1.0	0.840	21.00	17.64
EBONY-TAPE	Ebony PVC Tape 22mm		1.0	0.840	76.20	64.01
Total						**104.95**

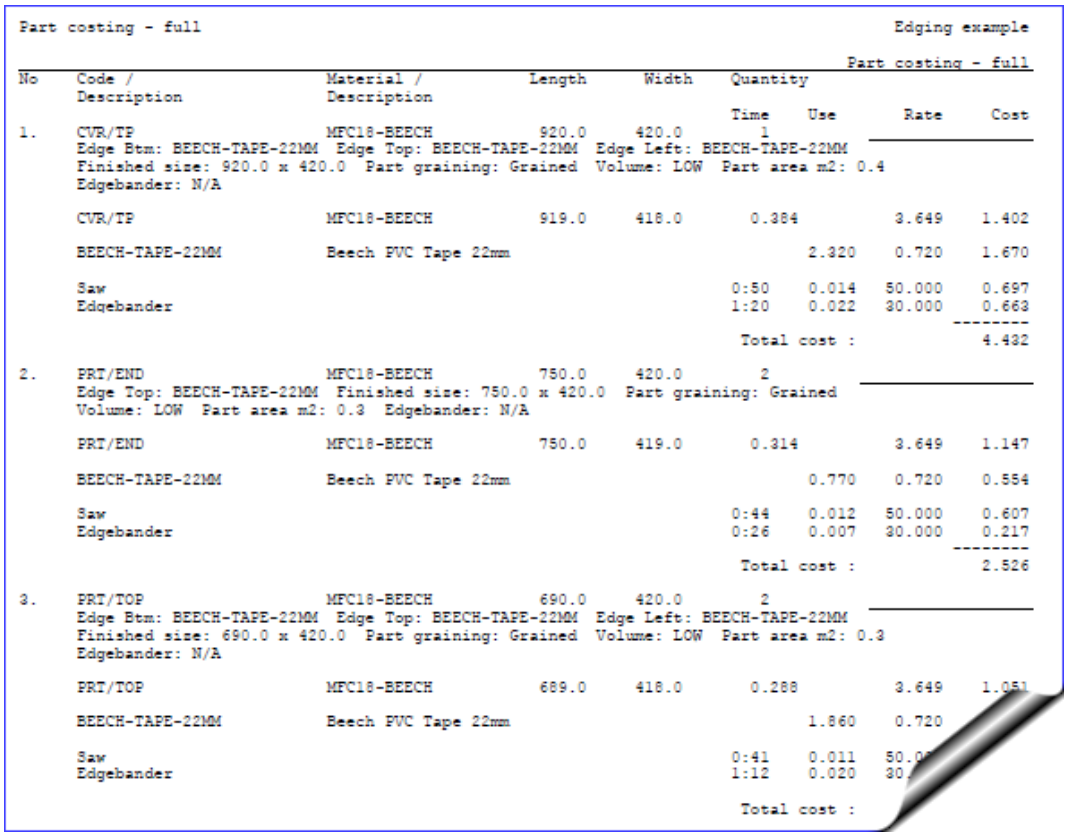
Edging summary

The Edging summary can include a custom graphic representation of the data.



Edging summary - chart

The printed part costing report includes the cost of edging material and the edgebander costs.



```
Part costing - full                                                                    Edging example

                                                                                     Part costing - full
No    Code /                    Material /          Length      Width    Quantity
      Description               Description                                  Time    Use       Rate      Cost
1.    CVR/TP                    MFC18-BEECH          920.0      420.0        1
      Edge Btm: BEECH-TAPE-22MM  Edge Top: BEECH-TAPE-22MM  Edge Left: BEECH-TAPE-22MM
      Finished size: 920.0 x 420.0  Part graining: Grained  Volume: LOW  Part area m2: 0.4
      Edgebander: N/A

      CVR/TP                    MFC18-BEECH          919.0      418.0       0.384                3.649    1.402

      BEECH-TAPE-22MM           Beech PVC Tape 22mm                                   2.320    0.720    1.670

      Saw                                                                      0:50    0.014   50.000    0.697
      Edgebander                                                               1:20    0.022   30.000    0.663
                                                                                                        --------
                                                                                Total cost :                4.432

2.    PRT/END                   MFC18-BEECH          750.0      420.0        2
      Edge Top: BEECH-TAPE-22MM  Finished size: 750.0 x 420.0  Part graining: Grained
      Volume: LOW  Part area m2: 0.3  Edgebander: N/A

      PRT/END                   MFC18-BEECH          750.0      419.0       0.314                3.649    1.147

      BEECH-TAPE-22MM           Beech PVC Tape 22mm                                   0.770    0.720    0.554

      Saw                                                                      0:44    0.012   50.000    0.607
      Edgebander                                                               0:26    0.007   30.000    0.217
                                                                                                        --------
                                                                                Total cost :                2.526

3.    PRT/TOP                   MFC18-BEECH          690.0      420.0        2
      Edge Btm: BEECH-TAPE-22MM  Edge Top: BEECH-TAPE-22MM  Edge Left: BEECH-TAPE-22MM
      Finished size: 690.0 x 420.0  Part graining: Grained  Volume: LOW  Part area m2: 0.3
      Edgebander: N/A

      PRT/TOP                   MFC18-BEECH          689.0      418.0       0.288                3.649    1.051

      BEECH-TAPE-22MM           Beech PVC Tape 22mm                                   1.860    0.720

      Saw                                                                      0:41    0.011   50.0
      Edgebander                                                               1:12    0.020   30

                                                                                Total cost :
```

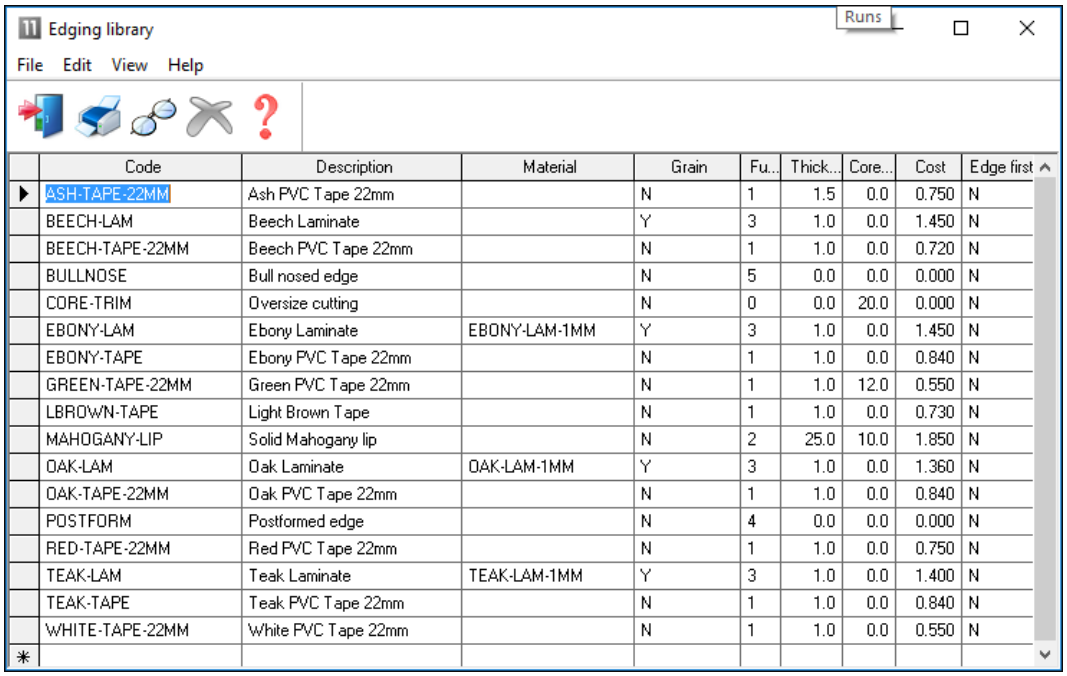
Edging - part costing

The operational details and costs of each Edgebander are set up in the Edging parameters and the Machining rate parameters. These include options such as:-

```
- Overlap for edging
- Gap between parts
- Edgebander speed
- Double sided or not
...
```

Edging library

The details of the edging materials and operations are set up in the Edging library. This can be customised to match many different edging methods, for example, whether edging is applied before laminating, whether a core trim is taken, the type of edging …



Edging library

File Edit View Help

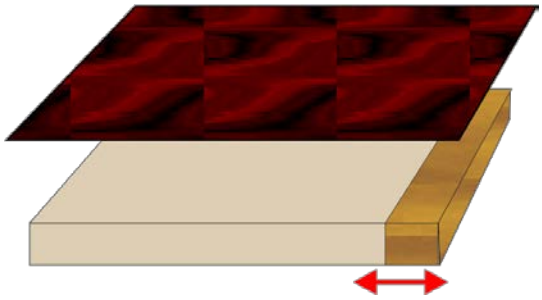
Code	Description	Material	Grain	Fu...	Thick...	Core...	Cost	Edge first
ASH-TAPE-22MM	Ash PVC Tape 22mm		N	1	1.5	0.0	0.750	N
BEECH-LAM	Beech Laminate		Y	3	1.0	0.0	1.450	N
BEECH-TAPE-22MM	Beech PVC Tape 22mm		N	1	1.0	0.0	0.720	N
BULLNOSE	Bull nosed edge		N	5	0.0	0.0	0.000	N
CORE-TRIM	Oversize cutting		N	0	0.0	20.0	0.000	N
EBONY-LAM	Ebony Laminate	EBONY-LAM-1MM	Y	3	1.0	0.0	1.450	N
EBONY-TAPE	Ebony PVC Tape 22mm		N	1	1.0	0.0	0.840	N
GREEN-TAPE-22MM	Green PVC Tape 22mm		N	1	1.0	12.0	0.550	N
LBROWN-TAPE	Light Brown Tape		N	1	1.0	0.0	0.730	N
MAHOGANY-LIP	Solid Mahogany lip		N	2	25.0	10.0	1.850	N
OAK-LAM	Oak Laminate	OAK-LAM-1MM	Y	3	1.0	0.0	1.360	N
OAK-TAPE-22MM	Oak PVC Tape 22mm		N	1	1.0	0.0	0.840	N
POSTFORM	Postformed edge		N	4	0.0	0.0	0.000	N
RED-TAPE-22MM	Red PVC Tape 22mm		N	1	1.0	0.0	0.750	N
TEAK-LAM	Teak Laminate	TEAK-LAM-1MM	Y	3	1.0	0.0	1.400	N
TEAK-TAPE	Teak PVC Tape 22mm		N	1	1.0	0.0	0.840	N
WHITE-TAPE-22MM	White PVC Tape 22mm		N	1	1.0	0.0	0.550	N

Edging library

For example, where a core trim is specified, this indicates that the core material is trimmed first before edging is applied. This is quite common, for instance with doors, where solid wood edges are often applied before laminating.

- Where there are a large number of different laminates for example with laminate colours the Board library can be used instead of the edging library for describing the laminates - this is often more convenient for sheet laminates.

The core trim, for example, allows for the removal of core material ready for solid wood lipping.

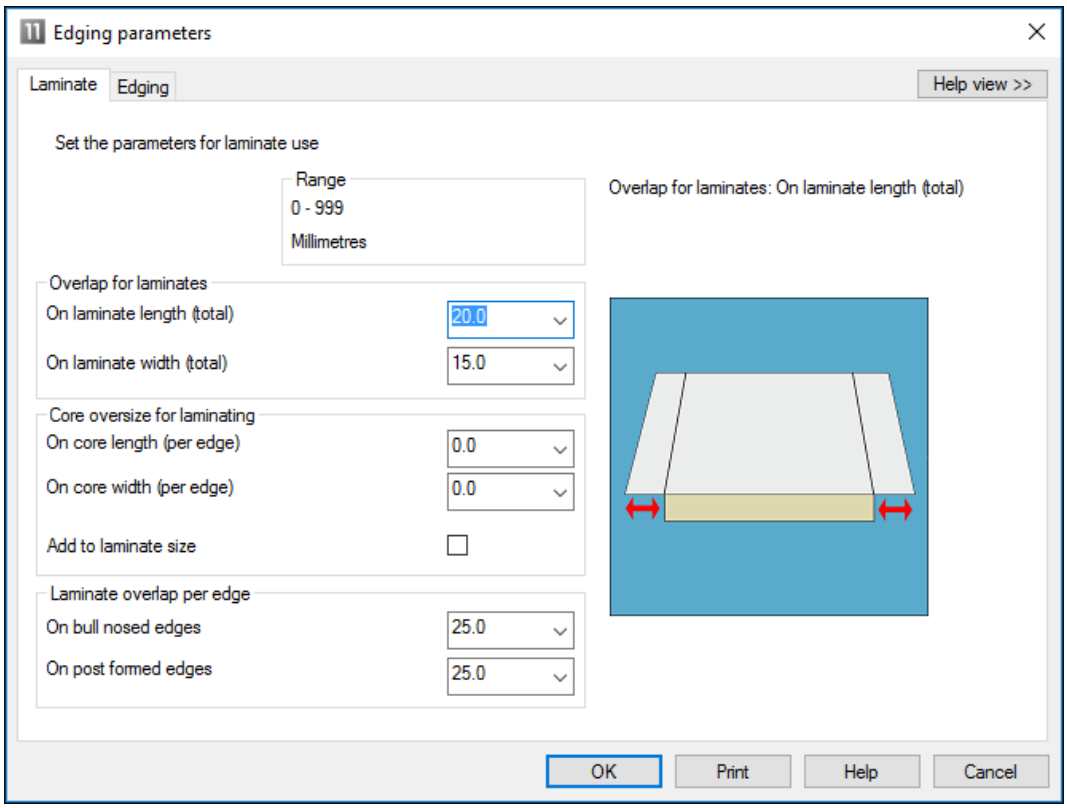


Lipping

The laminate size is automatically adjusted to take account of the lipping.

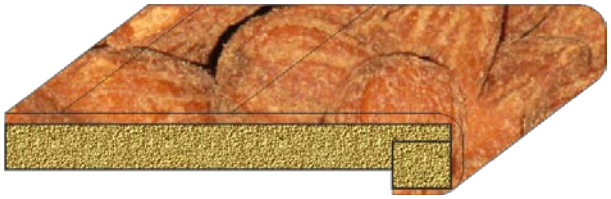
Edging parameters

The tolerances and settings for applying edging and laminates are set via the Edging parameters (*Main screen - Parameters - Edging*).



Edging parameters

This includes the details for more complex edges such as Post form and bullnose edges.



Summary of Edging & Laminating

Maximum items in library	99999
Maximum length of edge code	25
Maximum laminates in board library	Unlimited
Edges	•
Laminates	•
Costing	•
Edging diagram with labels	•
Edging Summary	•

Parts Library

For better management and tracking of parts

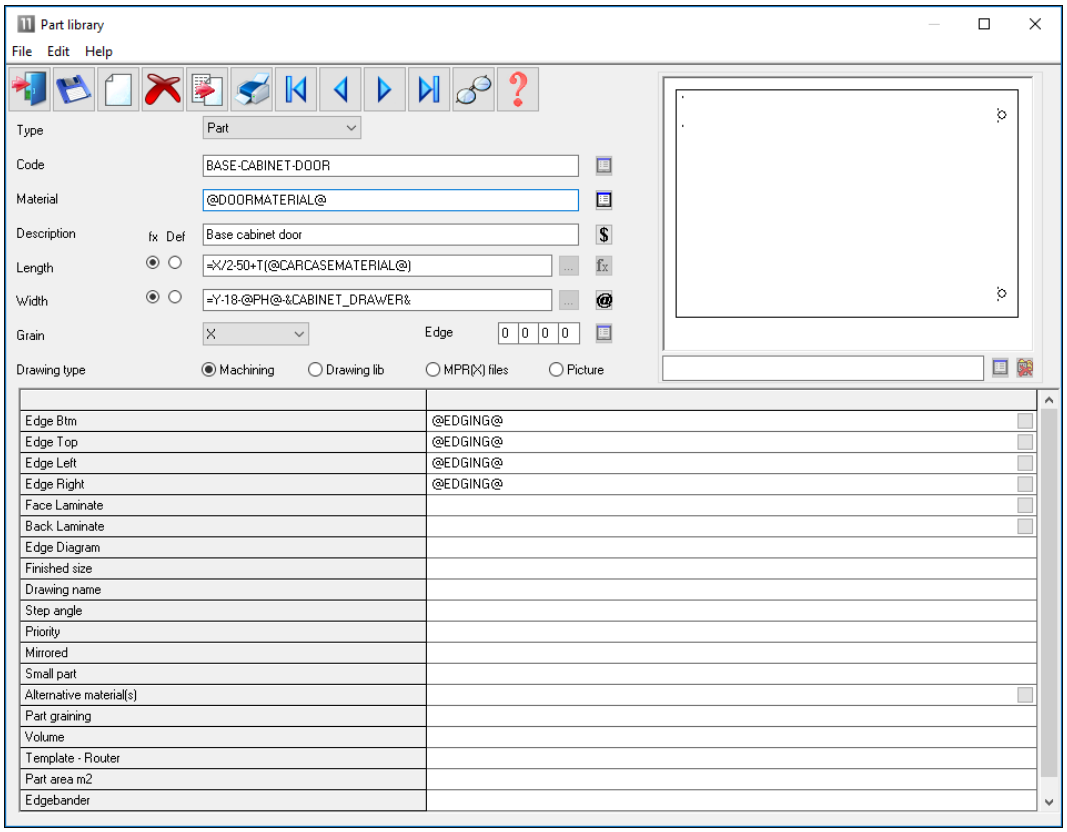
The Parts Library feature provides a database for parts and used with the form and label designer provides extensive facilities for managing extra data for parts.

It is especially useful where the same parts are used again and again in different cutting lists or where extra information is needed for each part for later processing, admin, or bar codes,

Parts can be added to any cutting list with minimum data entry - this saves times and avoids costly mistakes.

Part library

The data entry screen provides an easy way to enter part details.

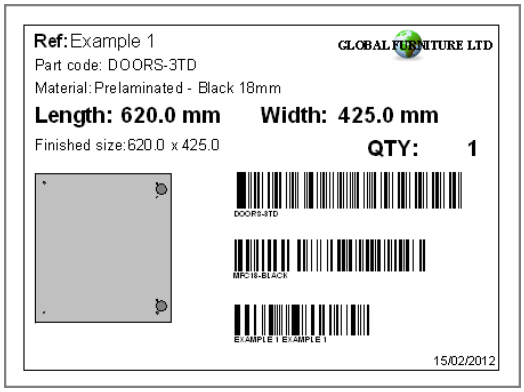


Part library

The part details include the standard items such as material code, length and width but any amount of user defined information can be stored with each part using extra fields (information boxes). This extra data can also be included on labels and reports to help with later processing of the part.

The part library can also include a picture of the part from the Machining library or a graphics file such as BMP, JPG or MPR(X).

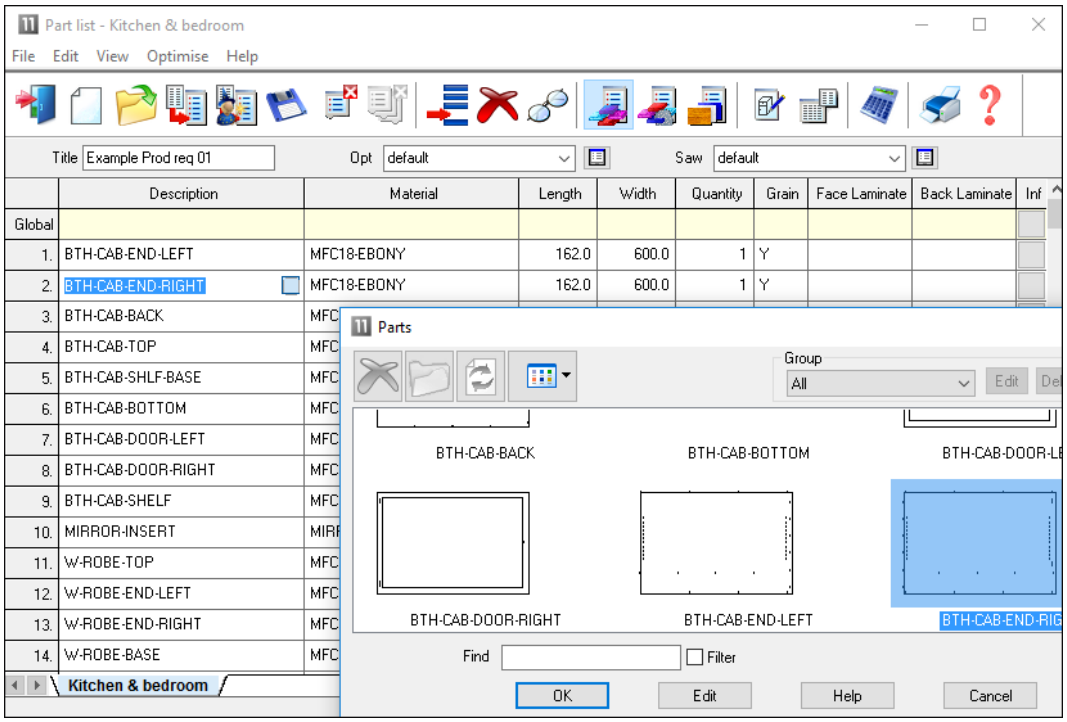
For some parts it is often useful to include a picture of the part on a label to help identify the part quickly.



Part label

At any cutting list the items in the library can be accessed by a single click and the part can be added to the list.

Typically only one or two items of information need to be adjusted such as the quantity required or possibly the material to use.



Cutting list - part library

Form & Label designer

The program includes a designer screen so that almost any style of label (typically a small adhesive label) or a full form (a one page report or a route card) can be set up.

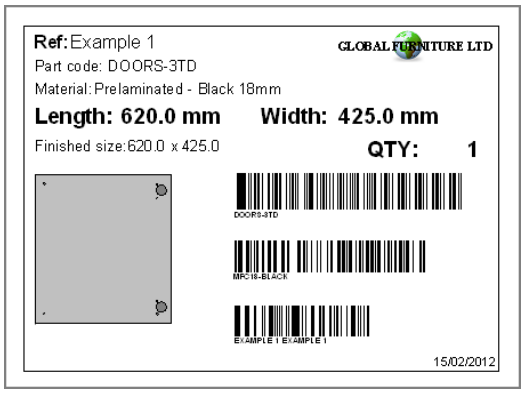
These are labels or forms for printing in the office

The data on the form or label can be chosen from any of the data set up for each part in the Part database. For example:-

```
Material code
Length
Width
```

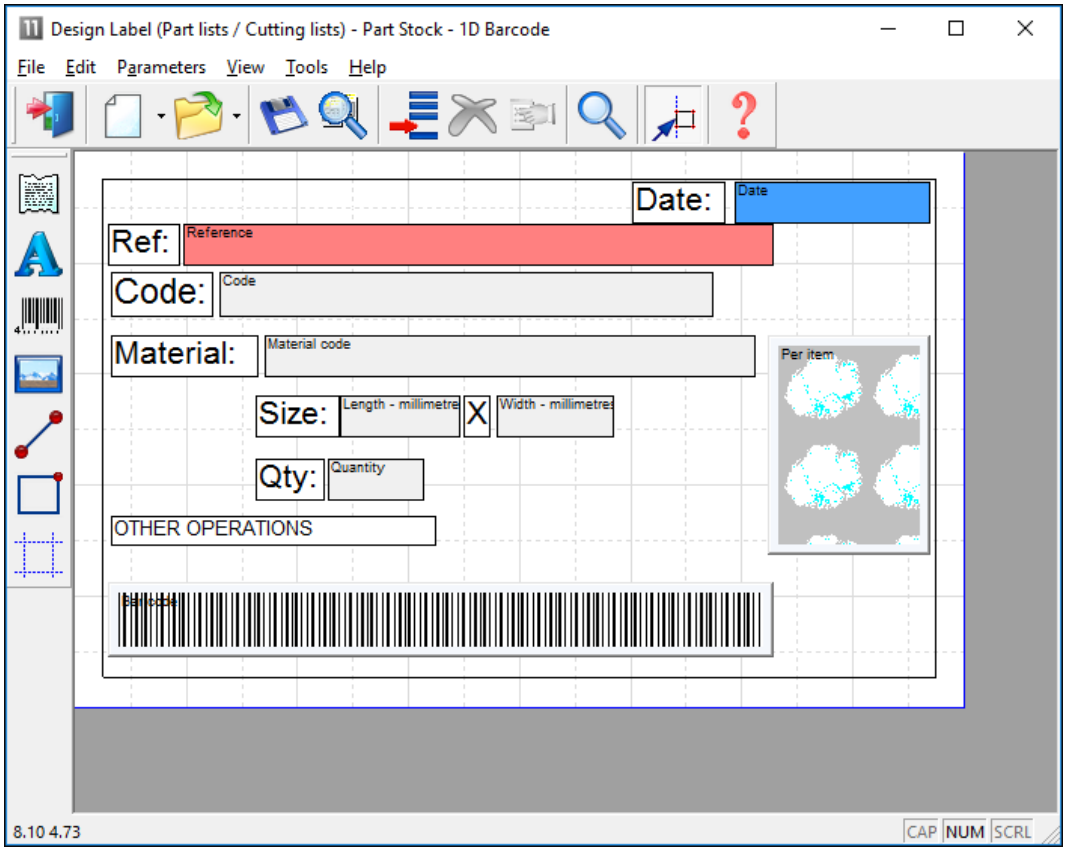
```
...
Part drawing
User defined details
Barcodes
Logos
...
```

The designer allows for the creation of a barcode for any of the items on the form or label, for example, barcodes for the part code and quantity.



Part label

The designer screen is easy to use and a variety of templates are already set up to use as a starting point.



Label designer

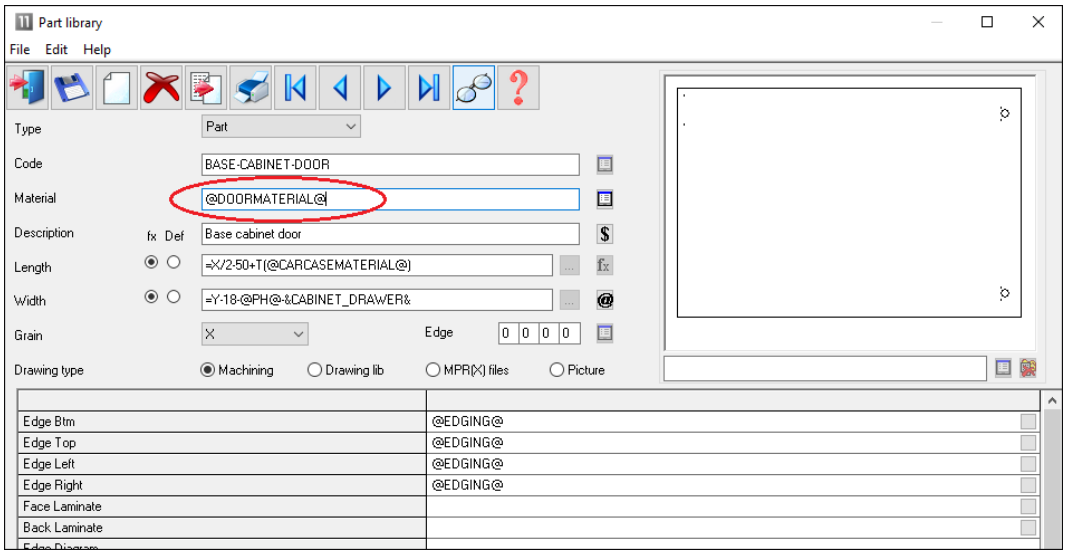
Each label or form is fully customisable. The designers include several options to help create effective designs.

- Grid, guidelines and snap options - to help place items on the design
- Different templates - with alternative designs and styles
- Quick preview - to check the layout
- Data preview - to make an accurate check of the layout

Parts & Labels with Products & Quotes (PQ) module

When used the with the PQ module the Part library extends the flexibility of the program since it can be used to define parts using variables and formulae for the part information.

The same part entry in the part library can be used for a range of colours, materials or sizes.



Part library and PQ module

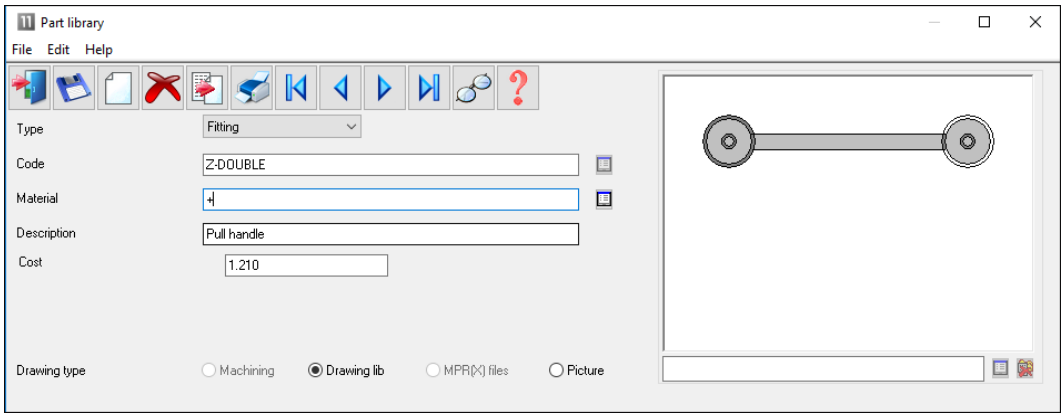
In this example the Material is defined by a variable '@DOORMATERIAL@' and the Length and Width are defined by formulae. This single part library entry can produce the correct specification for a range of cabinet doors in different materials, colours and sizes.

Fittings, Sundry parts, Operations

Requires the PQ module

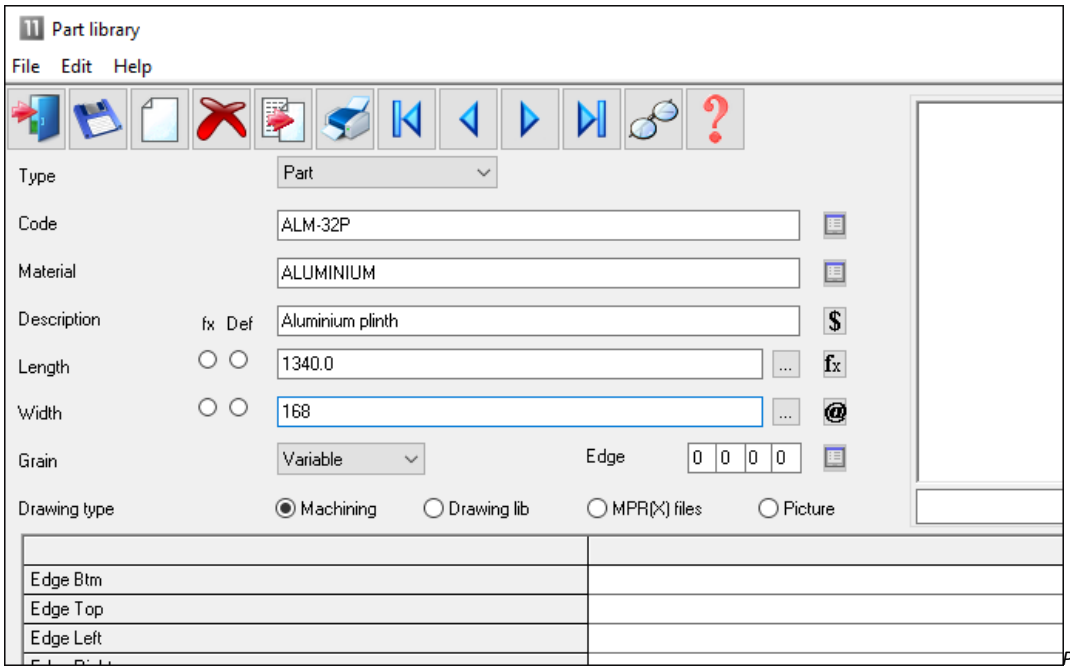
The parts database can also include fittings (hardware).

Fittings can include typical ironmongery items such handles, hinges and brackets and also larger 'bought in' appliances.



Part library - Fittings

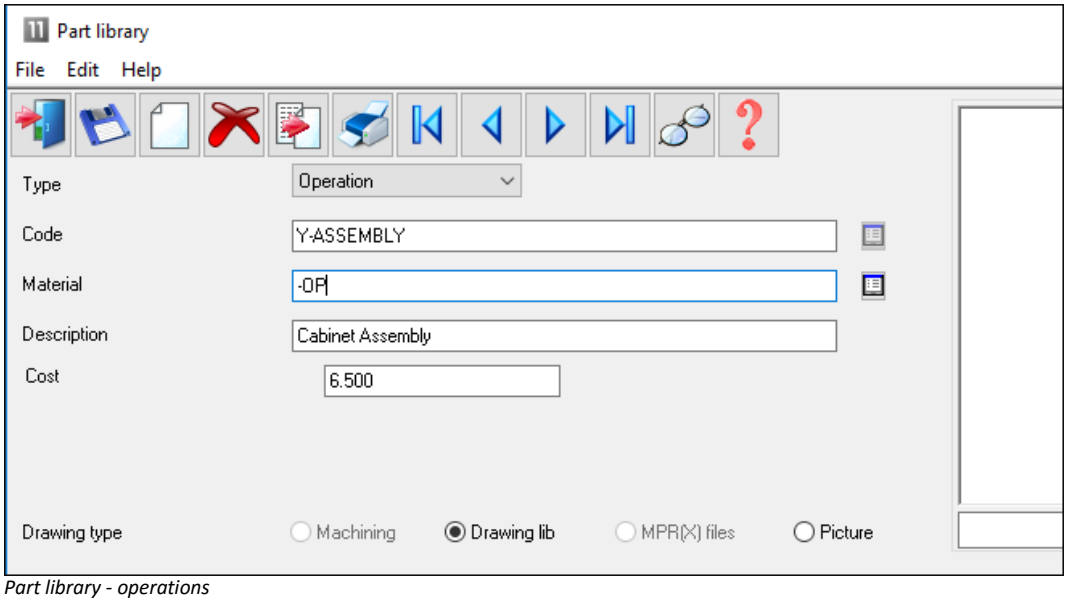
The library can also include 'bought in' or sundry parts that are required but are ready to use.



Part library - sundry parts

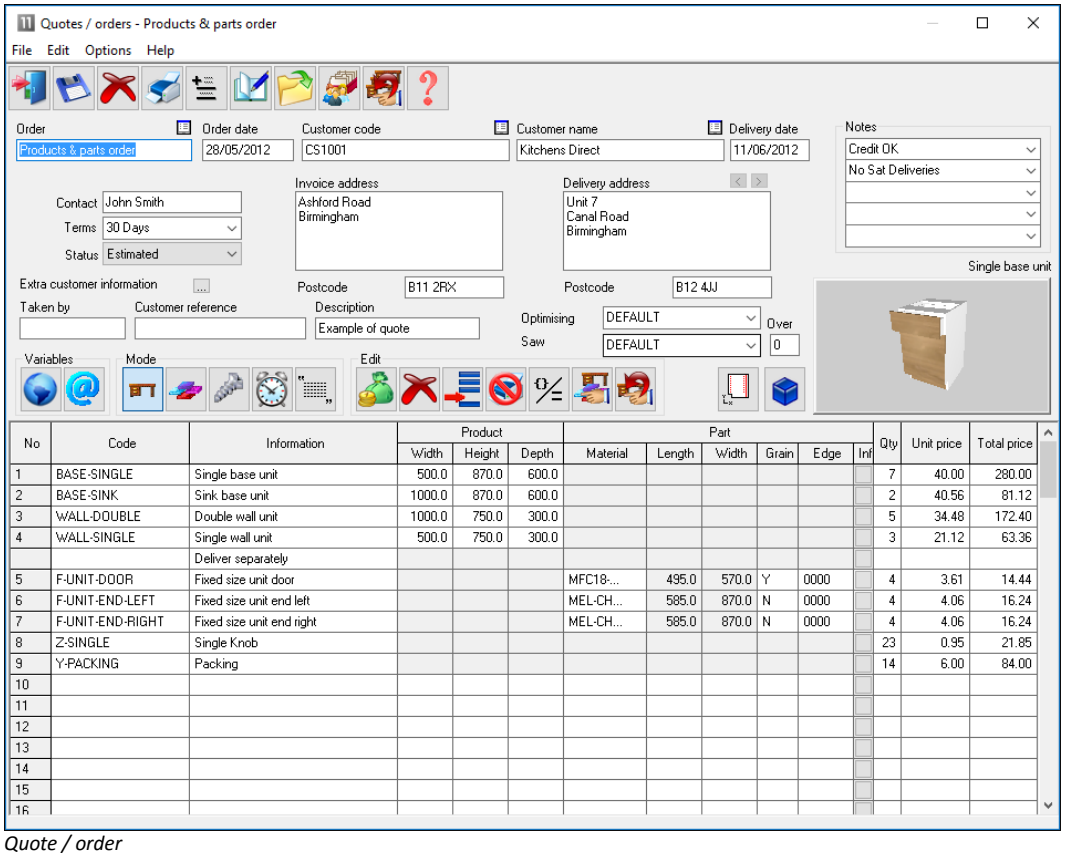
The operations required for each part can also be included in the database.

These are items such as, clamping, assembly, packing - where these can be allocated on a 'per part' basis.



Part library - operations

These items are added to the 'Order' so that a full specification (and costing) of the job is available.



Quote / order

Parts & Labels with the Machining Interface

The Part library is fully integrated with the Machining Interface; the part picture can be a machining drawing from the parametric Machining library. So any pictures and details created in the machining library can be passed through to the part label or form.

The part library can also be integrated with:-

```
- External bitmap (BMP, JPG) drawing
- WoodWop MPR(X) drawings
```

Parts & Labels with the Online PC option

The Online PC option can be used for designing and printing labels at the saw, it is typically used where there is no saw controller or the saw controller only has limited set of options.

Information and labels are automatically sent to the Online PC option to allow the viewing and printing of part information at the Saw.

Summary of Parts and Labels

- The form and label designer is not directly used for printing labels at the saw (other than via the Online PC option). It can be used to create designs for some saw controllers (e.g. Cadmatic) but there are often also label design options with many saw controllers.

	Parts & Labels	Parts & Labels + Online PC
Maximum items in library	99999	99999
Parts	•	•

Sundry parts	•	•
Fittings	•	•
Operations	•	•
Maximum length for part code	50	50
Form designer and templates	•	•
Label designer and templates	•	•
Parametric parts	•	•
Parametric drawings	•	•
External part drawings	•	•
Printing at Office	•	•
Printing at Saw		•
Import parts to database	•	•
Import external drawings to database	•	•

- The number of designs for the form designer or label designer is unlimited.
- Printing at the Saw is typically handled by software at the saw controller.

Destacking and Palletisation

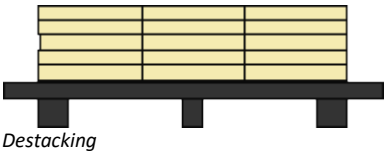
Efficient offstacking and faster through flow

Destacking requires the optimising module: PO

This provides for the set up and planning of the destacking process so that parts are distributed to pallets or baseboards efficiently after cutting.

Parts can be destacked manually or with specialised destacking equipment. It is flexible enough to cope with many destack situations including the use of automatic machinery.

A straightforward example is where parts are manually destacked on to fixed size pallets around the saw.



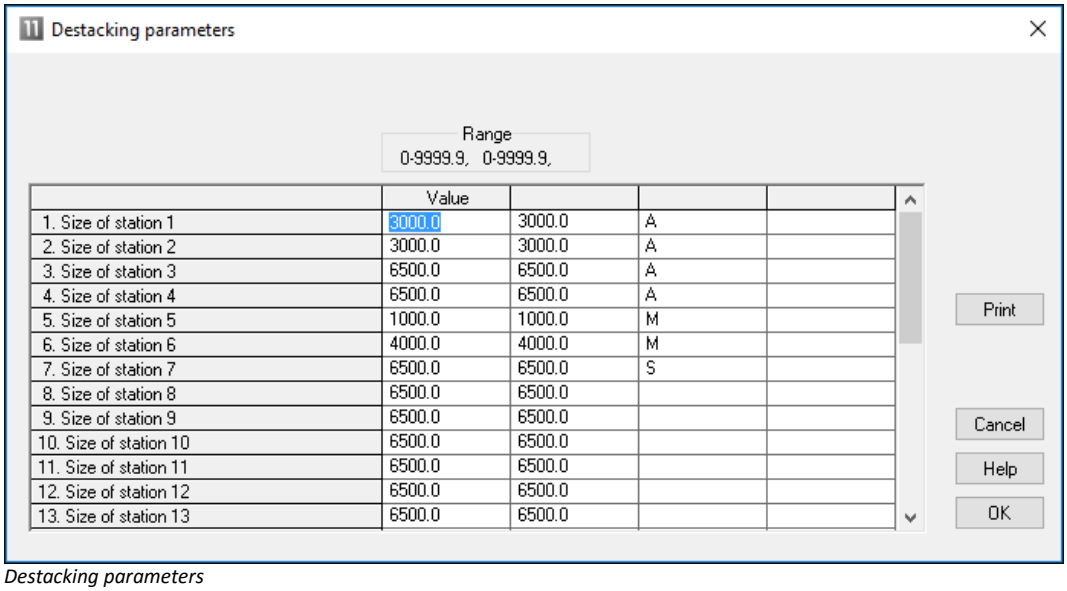
Destacking

Each location around the saw is a 'Station'.

The optimisation takes account of the destacking requirements and parts are only destacked to stations that are large enough. The required quantity of each part is completed before the station is cleared ready for the next part.

Destacking parameters

The destacking parameters are used to describe the number, size, and type of each station. Typically there might 4 or 5 stations available.



	Value			
1. Size of station 1	3000.0	3000.0	A	
2. Size of station 2	3000.0	3000.0	A	
3. Size of station 3	6500.0	6500.0	A	
4. Size of station 4	6500.0	6500.0	A	
5. Size of station 5	1000.0	1000.0	M	
6. Size of station 6	4000.0	4000.0	M	
7. Size of station 7	6500.0	6500.0	S	
8. Size of station 8	6500.0	6500.0		
9. Size of station 9	6500.0	6500.0		
10. Size of station 10	6500.0	6500.0		
11. Size of station 11	6500.0	6500.0		
12. Size of station 12	6500.0	6500.0		
13. Size of station 13	6500.0	6500.0		

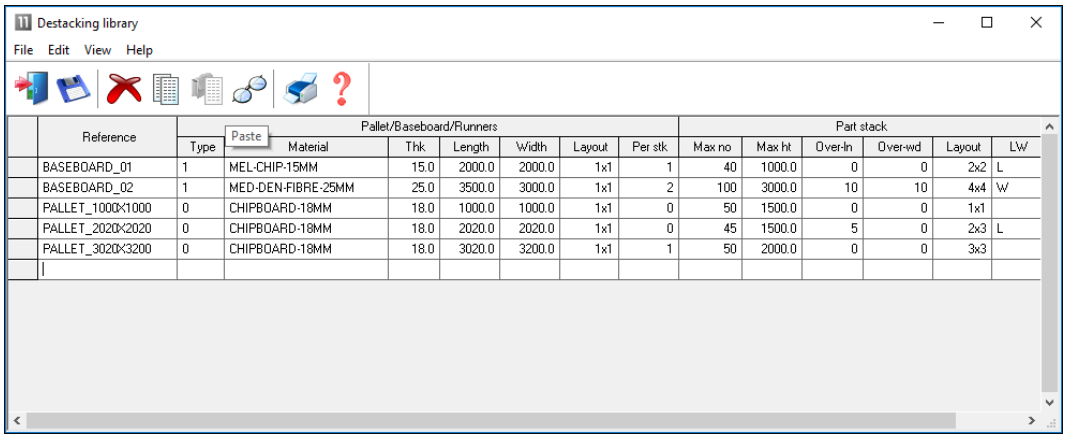
Destacking parameters

The destacking layout to use is set by information in the Part list (Part list information boxes).

Destacking library

The layout for destacking on to a pallet or baseboard is at its simplest the number in the length and the number in the width, for example, 3 x 3 or 2 x 1.

The styles to use are defined in the Destacking library. In this example there are different styles for baseboards and pallets.



Reference	Pallet/Baseboard/Runners							Part stack					
	Type	Material	Thk	Length	Width	Layout	Per stk	Max no	Max ht	Over-ln	Over-wd	Layout	LW
BASEBOARD_01	1	MEL-CHIP-15MM	15.0	2000.0	2000.0	1x1	1	40	1000.0	0	0	2x2	L
BASEBOARD_02	1	MED-DEN-FIBRE-25MM	25.0	3500.0	3000.0	1x1	2	100	3000.0	10	10	4x4	W
PALLET_1000X1000	0	CHIPBOARD-18MM	18.0	1000.0	1000.0	1x1	0	50	1500.0	0	0	1x1	
PALLET_2020X2020	0	CHIPBOARD-18MM	18.0	2020.0	2020.0	1x1	0	45	1500.0	5	0	2x3	L
PALLET_3020X3200	0	CHIPBOARD-18MM	18.0	3020.0	3200.0	1x1	1	50	2000.0	0	0	3x3	

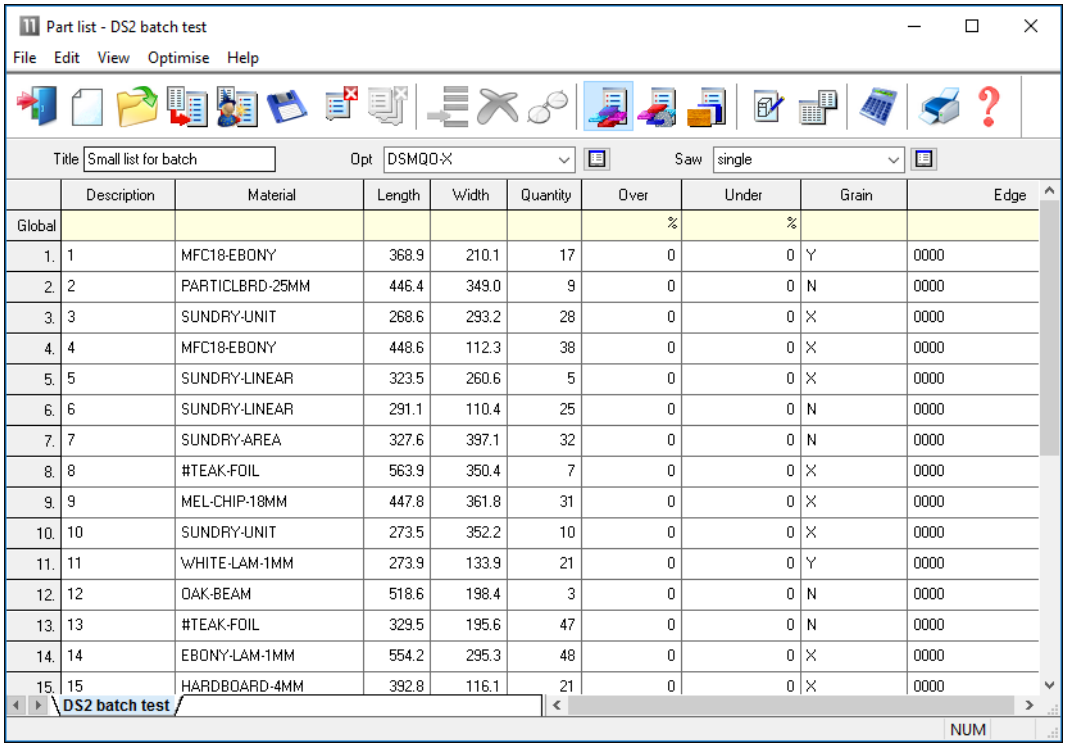
Destacking library

The library can hold many hundreds of styles but typically only a handful of styles are required. They can be set to match your requirements for stacking and processing.

Optimising and Destacking

The Destacking calculations are part of the optimising process and all the information is calculated during optimisation.

The destacking style to use for each part is set at the Part list using extra fields (Part list information boxes).



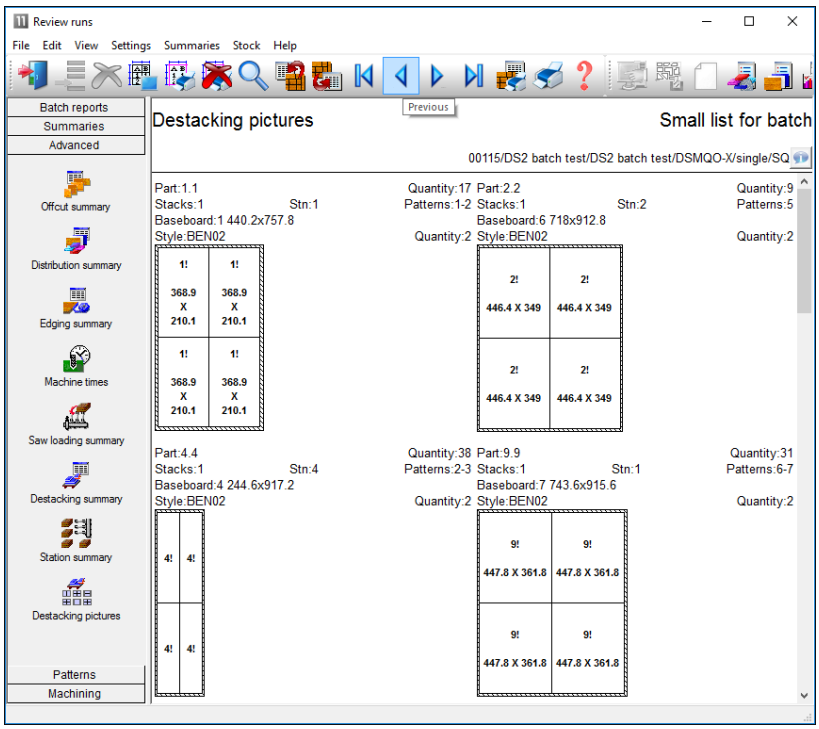
	Description	Material	Length	Width	Quantity	Over	Under	Grain	Edge
Global						%	%		
1.	1	MFC18-EBONY	368.9	210.1	17	0	0	Y	0000
2.	2	PARTICLBRD-25MM	446.4	349.0	9	0	0	N	0000
3.	3	SUNDRY-UNIT	268.6	293.2	28	0	0	X	0000
4.	4	MFC18-EBONY	448.6	112.3	38	0	0	X	0000
5.	5	SUNDRY-LINEAR	323.5	260.6	5	0	0	X	0000
6.	6	SUNDRY-LINEAR	291.1	110.4	25	0	0	N	0000
7.	7	SUNDRY-AREA	327.6	397.1	32	0	0	N	0000
8.	8	#TEAK-FOIL	563.9	350.4	7	0	0	X	0000
9.	9	MEL-CHIP-18MM	447.8	361.8	31	0	0	X	0000
10.	10	SUNDRY-UNIT	273.5	352.2	10	0	0	X	0000
11.	11	WHITE-LAM-1MM	273.9	133.9	21	0	0	Y	0000
12.	12	OAK-BEAM	518.6	198.4	3	0	0	N	0000
13.	13	#TEAK-FOIL	329.5	195.6	47	0	0	N	0000
14.	14	EBONY-LAM-1MM	554.2	295.3	48	0	0	X	0000
15.	15	HARDBOARD-4MM	392.8	116.1	21	0	0	X	0000

Destacking - part list

In this example several different pallet layouts are used. In many cases it may be necessary to specify different layouts for different parts, for example, it may dangerous to stack very small parts in a 4 x 4 layout.

The part list is optimised in the usual way. The Destacking information is shown in the 'Review runs summaries'. The optimisation automatically includes an advanced algorithm that ensures optimisation takes account of the stations sizes set in the Destacking parameters.

The Destacking pictures show the layout for each part.



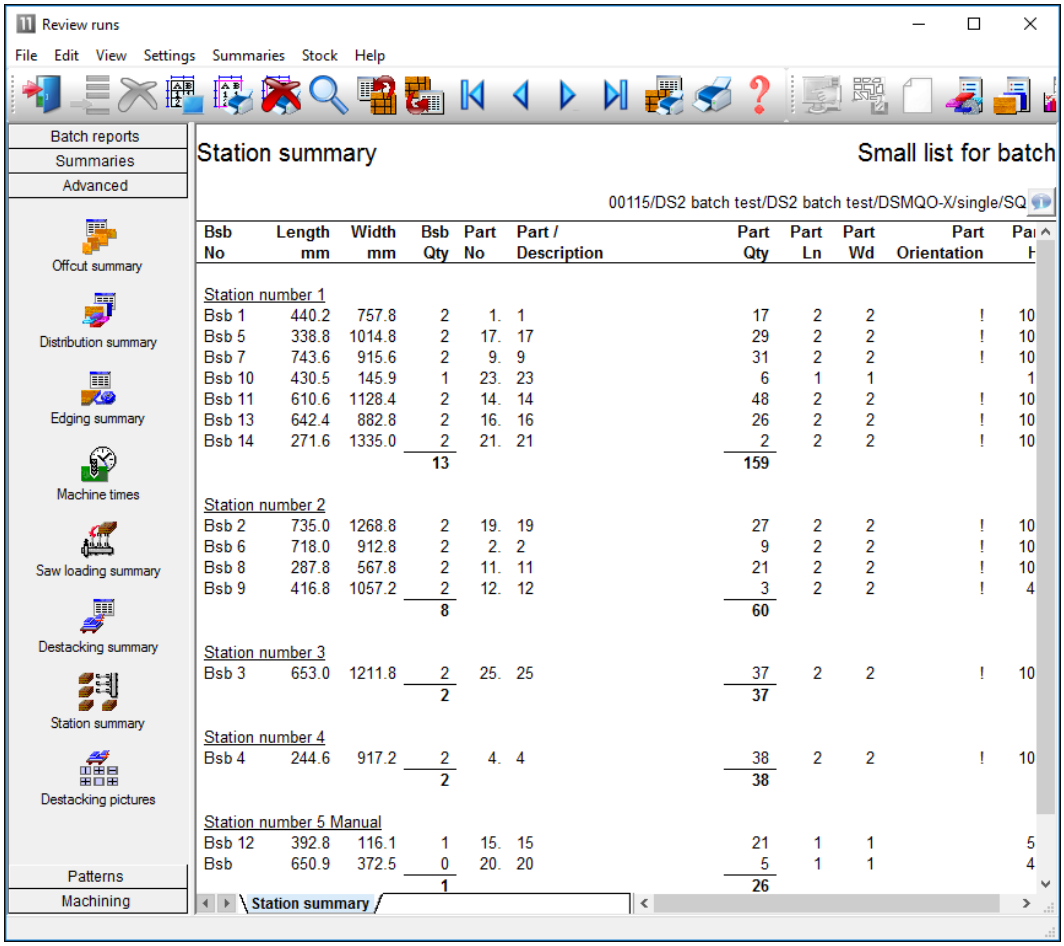
Destacking pictures

These can be used for controlling and checking the destack process.

Two other reports are available:-

Station summary

This shows how each station is loaded and the order of parts arriving at each station.

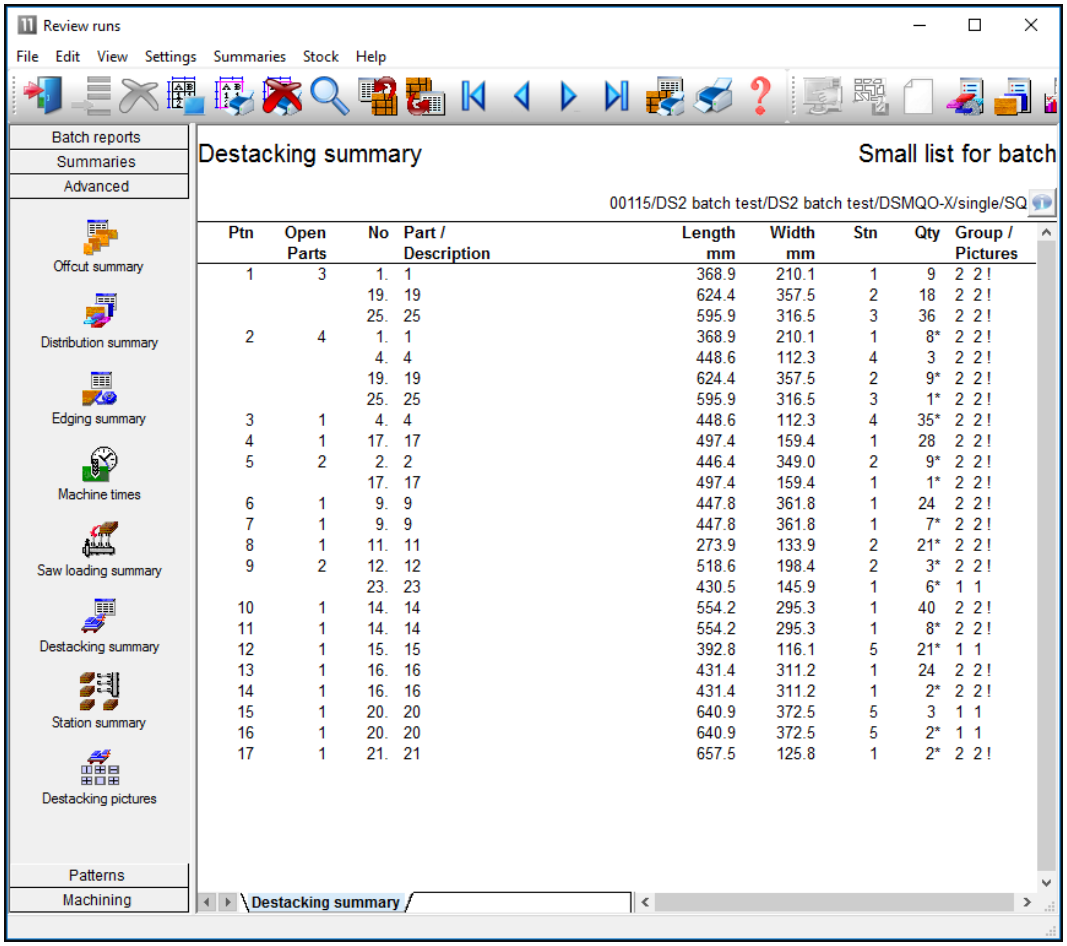


Bsb No	Length mm	Width mm	Bsb Qty	Part No	Part / Description	Part Qty	Part Ln	Part Wd	Part Orientation	Pa H
Station number 1										
Bsb 1	440.2	757.8	2	1.	1	17	2	2	!	10
Bsb 5	338.8	1014.8	2	17.	17	29	2	2	!	10
Bsb 7	743.6	915.6	2	9.	9	31	2	2	!	10
Bsb 10	430.5	145.9	1	23.	23	6	1	1		1
Bsb 11	610.6	1128.4	2	14.	14	48	2	2	!	10
Bsb 13	642.4	882.8	2	16.	16	26	2	2	!	10
Bsb 14	271.6	1335.0	2	21.	21	2	2	2	!	10
			13			159				
Station number 2										
Bsb 2	735.0	1268.8	2	19.	19	27	2	2	!	10
Bsb 6	718.0	912.8	2	2.	2	9	2	2	!	10
Bsb 8	287.8	567.8	2	11.	11	21	2	2	!	10
Bsb 9	416.8	1057.2	2	12.	12	3	2	2	!	4
			8			60				
Station number 3										
Bsb 3	653.0	1211.8	2	25.	25	37	2	2	!	10
			2			37				
Station number 4										
Bsb 4	244.6	917.2	2	4.	4	38	2	2	!	10
			2			38				
Station number 5 Manual										
Bsb 12	392.8	116.1	1	15.	15	21	1	1		5
Bsb	650.9	372.5	0	20.	20	5	1	1		4
			1			26				

Station summary

Destacking Summary

This shows for each cutting pattern how the parts are produced and the sequence they arrive at stations.



Ptn	Open Parts	No	Part / Description	Length mm	Width mm	Stn	Qty	Group / Pictures
1	3	1.	1	368.9	210.1	1	9	2 2 !
		19.	19	624.4	357.5	2	18	2 2 !
		25.	25	595.9	316.5	3	36	2 2 !
2	4	1.	1	368.9	210.1	1	8*	2 2 !
		4.	4	448.6	112.3	4	3	2 2 !
		19.	19	624.4	357.5	2	9*	2 2 !
		25.	25	595.9	316.5	3	1*	2 2 !
3	1	4.	4	448.6	112.3	4	35*	2 2 !
4	1	17.	17	497.4	159.4	1	28	2 2 !
5	2	2.	2	446.4	349.0	2	9*	2 2 !
		17.	17	497.4	159.4	1	1*	2 2 !
6	1	9.	9	447.8	361.8	1	24	2 2 !
7	1	9.	9	447.8	361.8	1	7*	2 2 !
8	1	11.	11	273.9	133.9	2	21*	2 2 !
9	2	12.	12	518.6	198.4	2	3*	2 2 !
		23.	23	430.5	145.9	1	6*	1 1
10	1	14.	14	554.2	295.3	1	40	2 2 !
11	1	14.	14	554.2	295.3	1	8*	2 2 !
12	1	15.	15	392.8	116.1	5	21*	1 1
13	1	16.	16	431.4	311.2	1	24	2 2 !
14	1	16.	16	431.4	311.2	1	2*	2 2 !
15	1	20.	20	640.9	372.5	5	3	1 1
16	1	20.	20	640.9	372.5	5	2*	1 1
17	1	21.	21	657.5	125.8	1	2*	2 2 !

Destacking summary

Using Destacking information

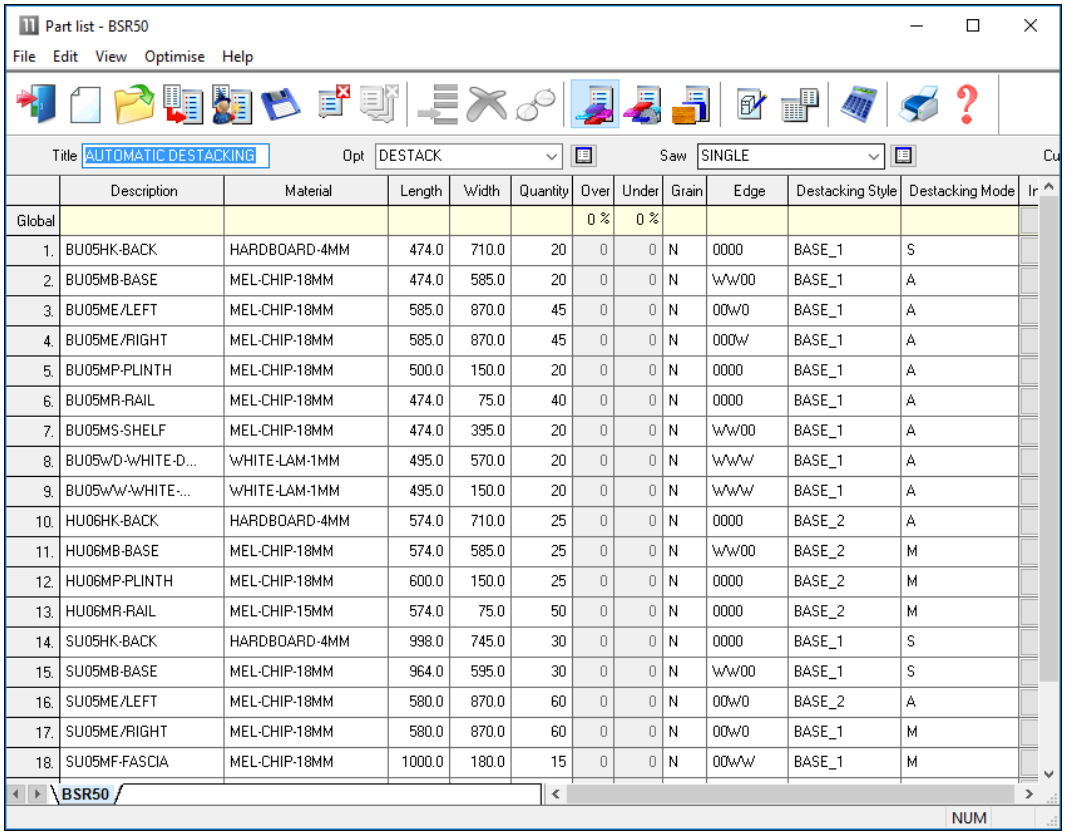
- All the reports can be easily printed and used at the Destacking area or for planning.

- For Homag/Holzma/Homag Automation destacking machinery the destacking information can be downloaded (via the Saw interface) for use by automatic destacking machinery.

- Labels for each pallets and/or each stack can be printed in the office.

Baseboards

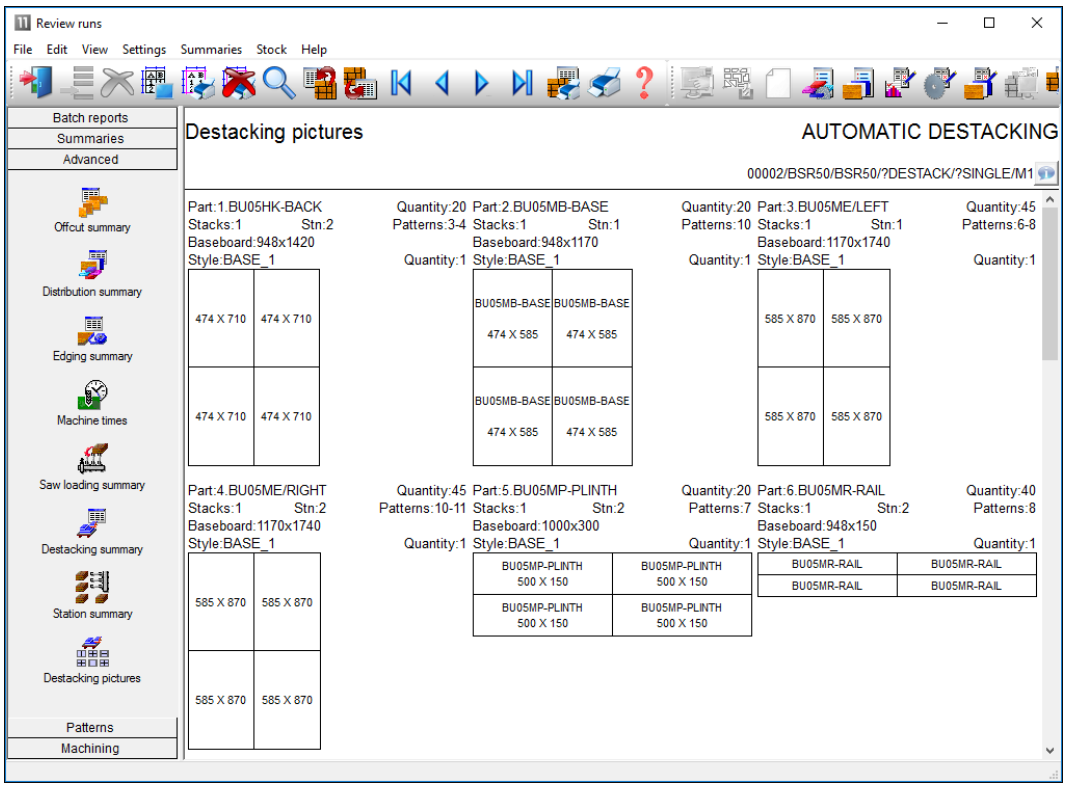
Many customers offstack to cut to size baseboards rather than pallets. Destacking can be set up for this (or a mixture of both).



	Description	Material	Length	Width	Quantity	Over	Under	Grain	Edge	Destacking Style	Destacking Mode
Global						0 %	0 %				
1.	BU05HK-BACK	HARDBOARD-4MM	474.0	710.0	20	0	0	N	0000	BASE_1	S
2.	BU05MB-BASE	MEL-CHIP-18MM	474.0	585.0	20	0	0	N	WW00	BASE_1	A
3.	BU05ME/LEFT	MEL-CHIP-18MM	585.0	870.0	45	0	0	N	00W0	BASE_1	A
4.	BU05ME/RIGHT	MEL-CHIP-18MM	585.0	870.0	45	0	0	N	000W	BASE_1	A
5.	BU05MP-PLINTH	MEL-CHIP-18MM	500.0	150.0	20	0	0	N	0000	BASE_1	A
6.	BU05MR-RAIL	MEL-CHIP-18MM	474.0	75.0	40	0	0	N	0000	BASE_1	A
7.	BU05MS-SHELF	MEL-CHIP-18MM	474.0	395.0	20	0	0	N	WW00	BASE_1	A
8.	BU05WD-WHITE-D...	WHITE-LAM-1MM	495.0	570.0	20	0	0	N	WWW	BASE_1	A
9.	BU05WW-WHITE-...	WHITE-LAM-1MM	495.0	150.0	20	0	0	N	WWW	BASE_1	A
10.	HU06HK-BACK	HARDBOARD-4MM	574.0	710.0	25	0	0	N	0000	BASE_2	A
11.	HU06MB-BASE	MEL-CHIP-18MM	574.0	585.0	25	0	0	N	WW00	BASE_2	M
12.	HU06MP-PLINTH	MEL-CHIP-18MM	600.0	150.0	25	0	0	N	0000	BASE_2	M
13.	HU06MR-RAIL	MEL-CHIP-15MM	574.0	75.0	50	0	0	N	0000	BASE_2	M
14.	SU05HK-BACK	HARDBOARD-4MM	998.0	745.0	30	0	0	N	0000	BASE_1	S
15.	SU05MB-BASE	MEL-CHIP-18MM	964.0	595.0	30	0	0	N	WW00	BASE_1	S
16.	SU05ME/LEFT	MEL-CHIP-18MM	580.0	870.0	60	0	0	N	00W0	BASE_2	A
17.	SU05ME/RIGHT	MEL-CHIP-18MM	580.0	870.0	60	0	0	N	00W0	BASE_1	M
18.	SU05MF-FASCIA	MEL-CHIP-18MM	1000.0	180.0	15	0	0	N	00WW	BASE_1	M

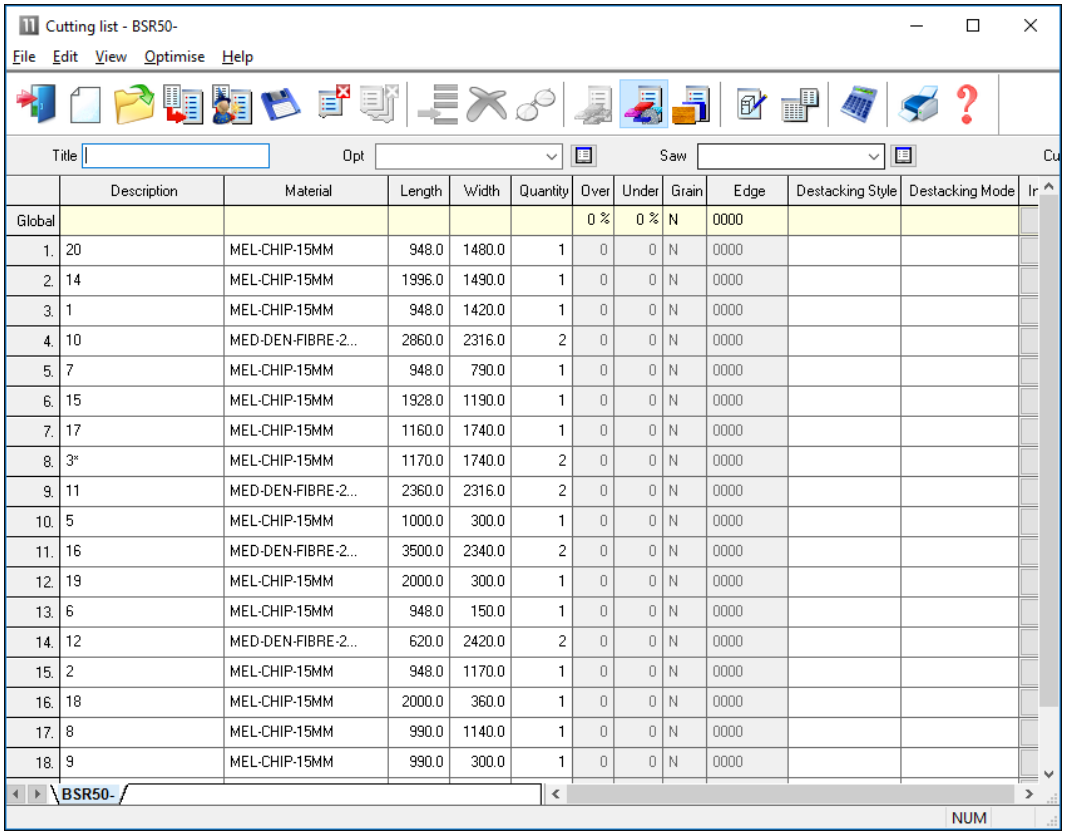
Destacking with Baseboards

The destacking pictures show the layout for each part on the baseboards.



Destacking pictures - Baseboards

The program also provides a cutting list for the Baseboards ready for optimising.



	Description	Material	Length	Width	Quantity	Over	Under	Grain	Edge	Destacking Style	Destacking Mode
Global						0 %	0 %	N	0000		
1.	20	MEL-CHIP-15MM	948.0	1480.0	1	0	0	N	0000		
2.	14	MEL-CHIP-15MM	1996.0	1490.0	1	0	0	N	0000		
3.	1	MEL-CHIP-15MM	948.0	1420.0	1	0	0	N	0000		
4.	10	MED-DEN-FIBRE-2...	2860.0	2316.0	2	0	0	N	0000		
5.	7	MEL-CHIP-15MM	948.0	790.0	1	0	0	N	0000		
6.	15	MEL-CHIP-15MM	1928.0	1190.0	1	0	0	N	0000		
7.	17	MEL-CHIP-15MM	1160.0	1740.0	1	0	0	N	0000		
8.	3*	MEL-CHIP-15MM	1170.0	1740.0	2	0	0	N	0000		
9.	11	MED-DEN-FIBRE-2...	2360.0	2316.0	2	0	0	N	0000		
10.	5	MEL-CHIP-15MM	1000.0	300.0	1	0	0	N	0000		
11.	16	MED-DEN-FIBRE-2...	3500.0	2340.0	2	0	0	N	0000		
12.	19	MEL-CHIP-15MM	2000.0	300.0	1	0	0	N	0000		
13.	6	MEL-CHIP-15MM	948.0	150.0	1	0	0	N	0000		
14.	12	MED-DEN-FIBRE-2...	620.0	2420.0	2	0	0	N	0000		
15.	2	MEL-CHIP-15MM	948.0	1170.0	1	0	0	N	0000		
16.	18	MEL-CHIP-15MM	2000.0	360.0	1	0	0	N	0000		
17.	8	MEL-CHIP-15MM	990.0	1140.0	1	0	0	N	0000		
18.	9	MEL-CHIP-15MM	990.0	300.0	1	0	0	N	0000		

Destacking - Baseboard picking list

Note - the baseboard cutting list has the same name as the part list with a hyphen added. e.g. 'Cabinets', 'Cabinets-'. This list is found in the 'Cutting list' section.

Flexible Destacking

The destacking options are very flexible and can be set up for:-

- Offstacking to the floor (no station sizes)
- Offstacking to a mix of automatic and manual stations
- Offstacking to include one or more 'Overflow' stations
- Use of 'Pallet groups'

Pallet groups

The program also includes more general options to take account of Pallet groups. For example, a field (information box) is available at the part list to set a pallet group number for each part.

This ensures the optimisers arrange the pattern layouts so parts in the same pallet group are finished before considering parts from other pallet groups. This speeds up later production and assembly operations and helps with delivery times for specific parts.

For example, a customer recently needed to set up their system to produce 1 job at a time and used the Pallet group option for this. The flexibility of the optimisers also allowed 'changeover' patterns where one group finished and the next started so waste was minimised.

Summary of Destacking

	Destacking
Maximum items in library	9999
Maximum number of stations	20

Automatic machinery	•
Manual destacking	•
Allow overflow stations	•
Pallet groups	•
Fixed pallets	•
Baseboards	•
Destack to floor	•
Labels for stacks or pallets	•
Destack pictures	•
Destack Summary	•
Station summary	•
Download to destack machinery	•

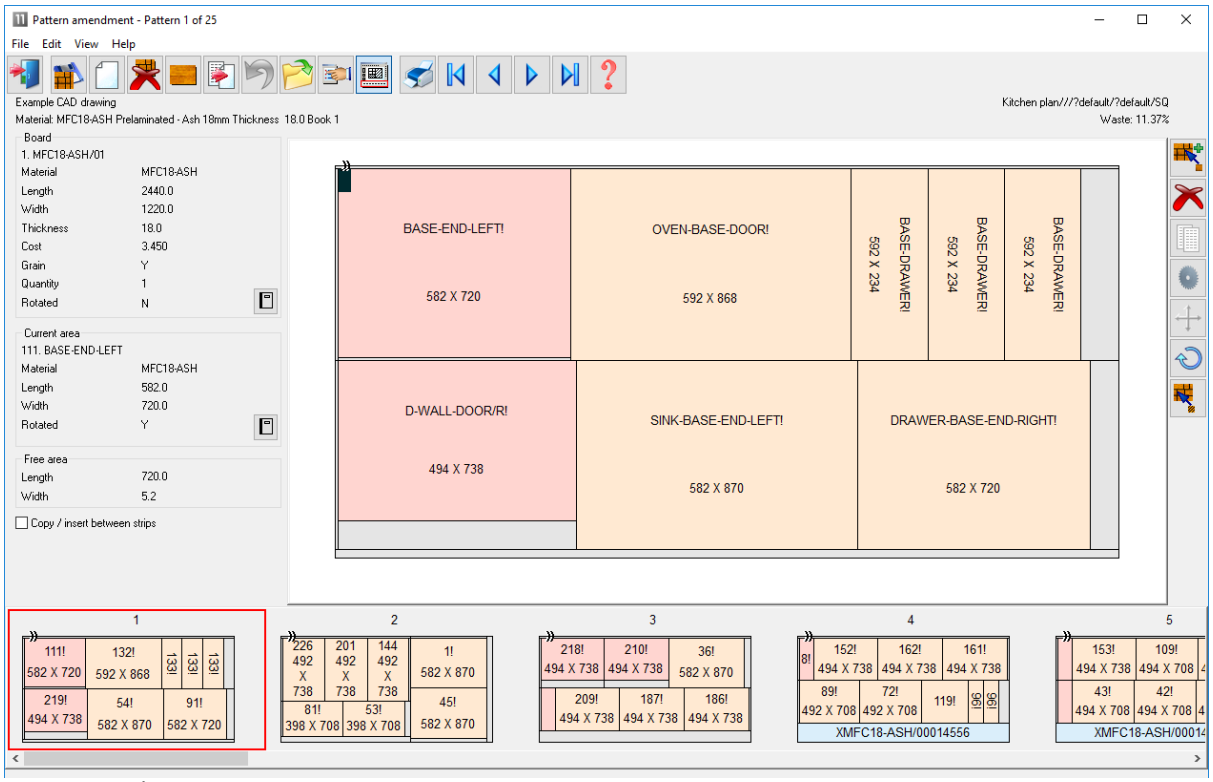
Pattern amendment

Edit patterns and create new patterns manually (without optimising)

Pattern amendment can be useful for including last minute production changes and for using up offcuts.

Simple double click the Pattern screen from Review runs and you can start editing patterns.

The program displays the pattern editor (pattern amendment).



Pattern amendment

The pattern is shown at the right and information about the pattern is shown to the left. The bottom pane (Preview bar) shows a thumbnail view of the patterns in the run.

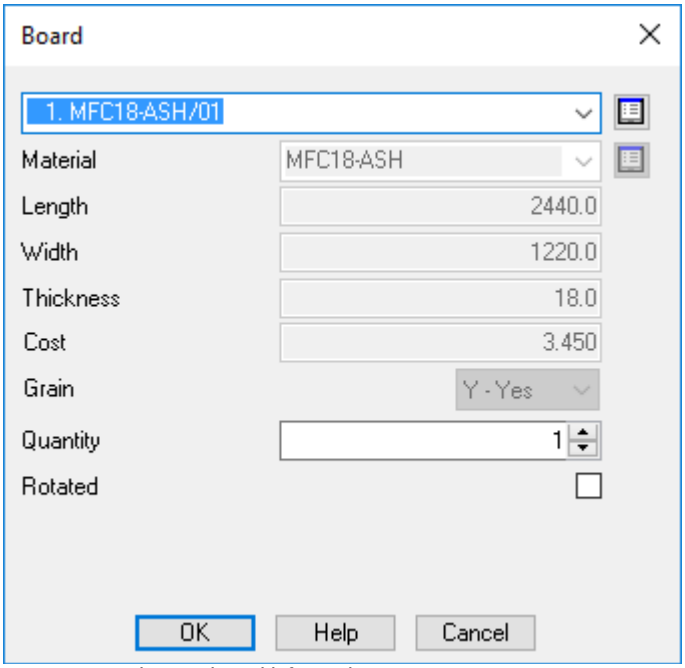
From this point you can add, copy or delete parts, copy or delete strips, insert or delete head cuts, fill in offcuts and make any change to an existing pattern that you need. You can also change the board quantity and the board rotation and the size of the board or place the existing set of parts on a different board.

Parts can be moved or copied from the pattern shown to patterns in the preview bar - making it easy to alter or adjust patterns.

The program checks all the actions you take and will prevent you moving or copying items to areas that are too small or creating a pattern that violates the basic parameters such as trims.

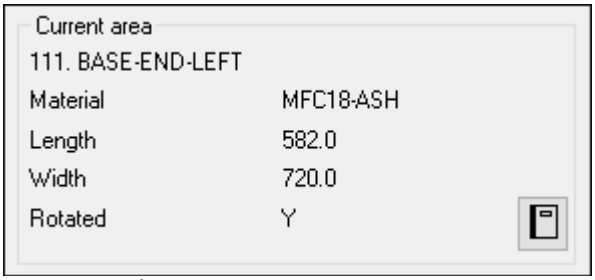
Board information - At the top left of the screen is information about the current board (Item no, board code, material code, length, width, thickness, cost and quantity). Note that the board item number is the item number of the board in the working board list.

To edit the current board (change the run quantity, rotate the board) select the 'Properties' button in the Board information section of the screen. The Boards dialog is displayed and you can use this to change the current board.



Pattern amendment - board information

Current Area information - As the cursor moves around the pattern information about the area under the cursor is shown in the Current Area information at the left of the screen.

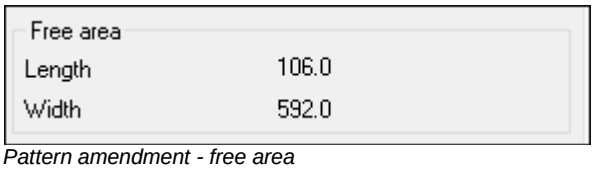


Pattern amendment current area

If the cursor is positioned on a part, the following information is shown: Item Number, Description, Material, Length, Width, Rotated (y/n). This is the main part information from the part list.

If the cursor is positioned on an area of waste (offcut or scrap) the window shows a description of offcut or scrap also the length and width of the area. When you add a part the program works out how many of each part fill the space you are adding to and automatically inserts the correct number of items. You can also create new parts (that are not in the part list or part library - enter a part code and the dimensions and any other information.

Free Area information - At the bottom of the information at the left of the screen is the Free Area information - this shows the size of the waste at the end of the strip that the cursor is on.



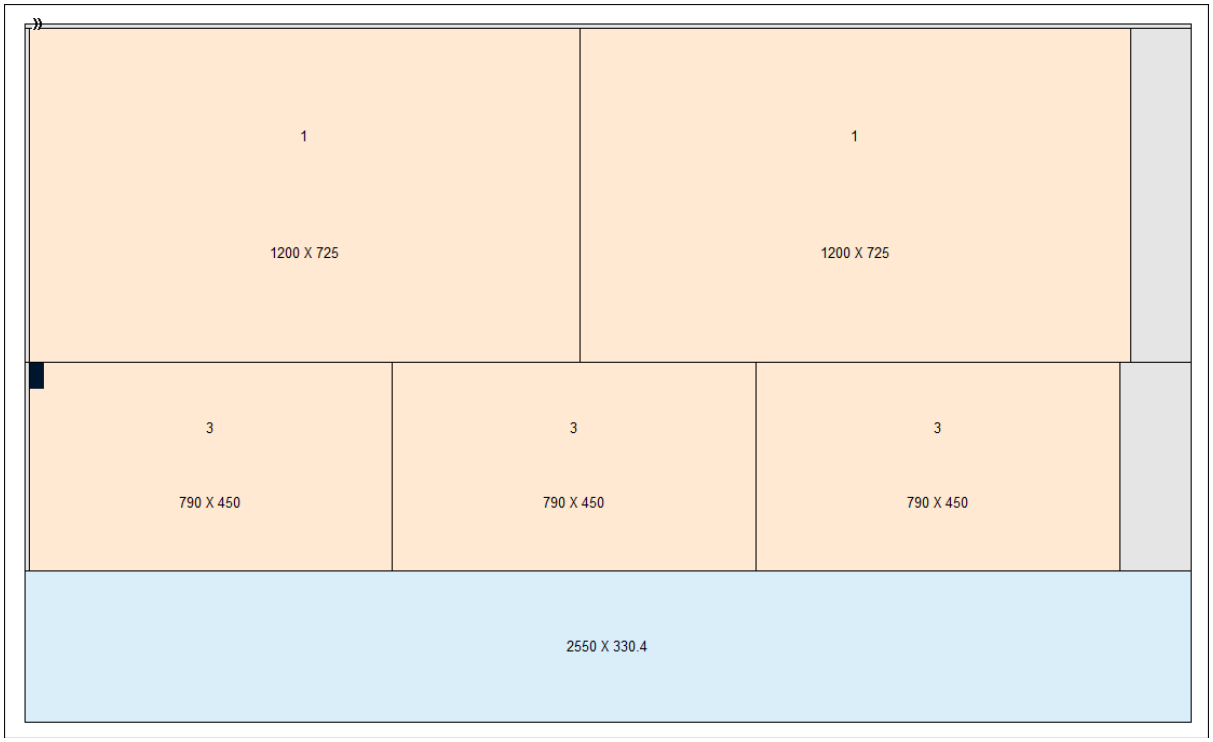
Pattern amendment - free area

When the cursor position is within a recut the free area refers to the waste below the recut (not the waste at the end of the strip).

Manual patterns - You can also create patterns manually with the MANUAL PATTERNS option on the OPTIMISE menu at the Part list screen.

Pattern amendment - example
In this example we are deleting a large part from an optimised run and adding in its place some plinths which are urgently required to replace 80 damaged plinths from a previous order.

We first locate the pattern with the part to delete and select the part by placing the cursor on it or by using the space bar.

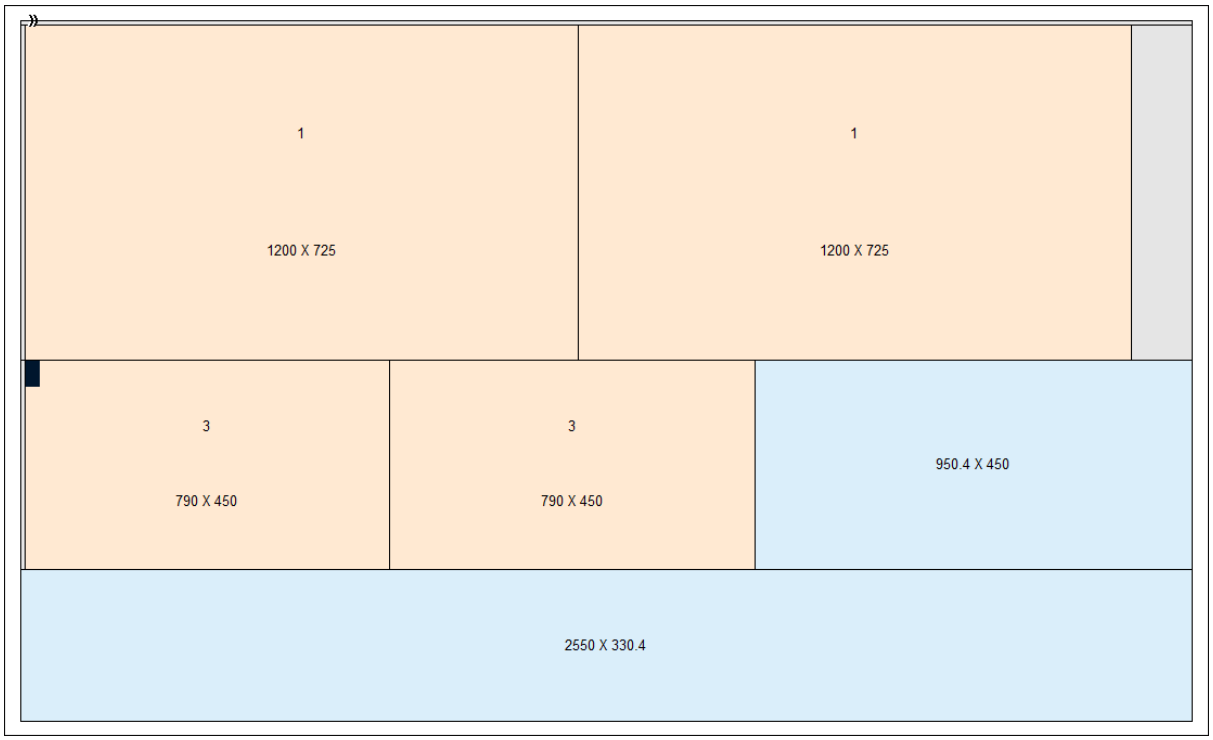


Pattern amendment – edit

Part 3 will be deleted and the area reused with some other parts that have become more urgent.

Take care when manually adjusting patterns because if too many changes are made then this may produce very inefficient cutting - in this case it is better to change the part list and re-optimise.

Select DELETE or the DEL button to remove the part.

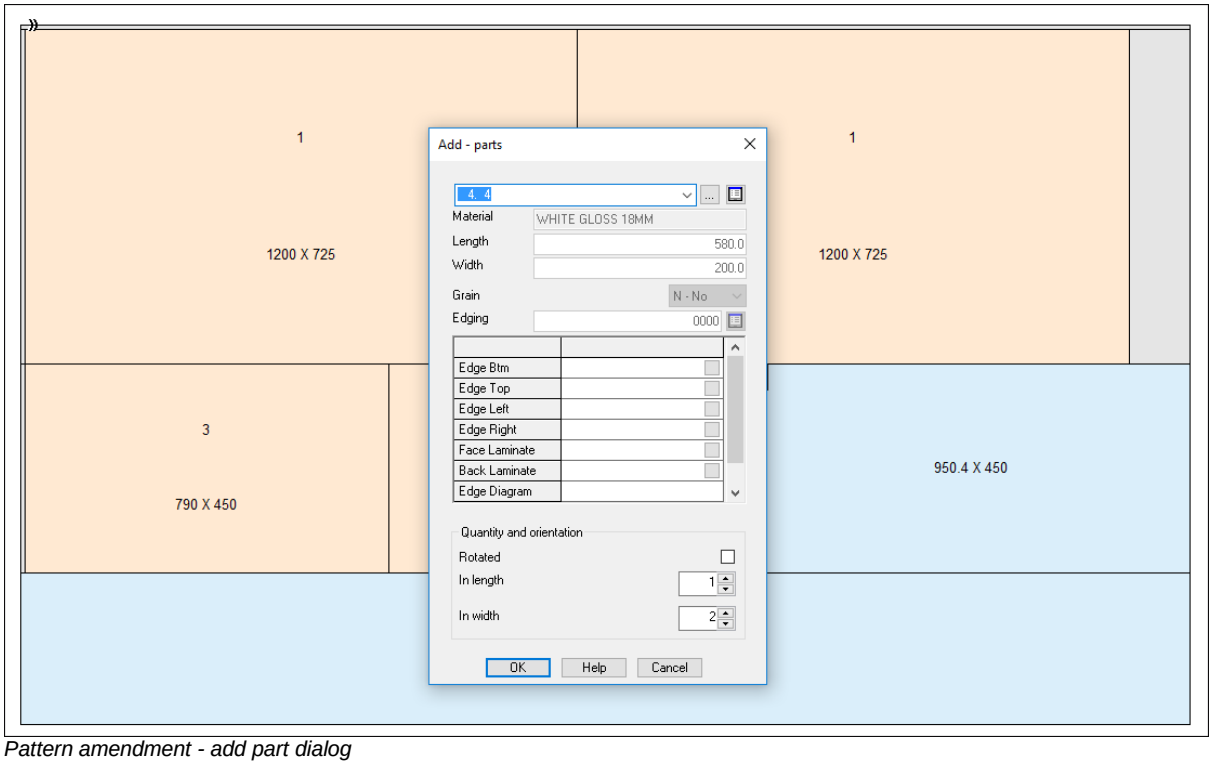


Pattern amendment – edit

The Area is shown as an offcut (or waste) as a shaded or coloured area.

The size of the waste area is shown. Note that not all of the area may be available because trims still need to be taken into account.

We now use the ADD option to add the parts required.



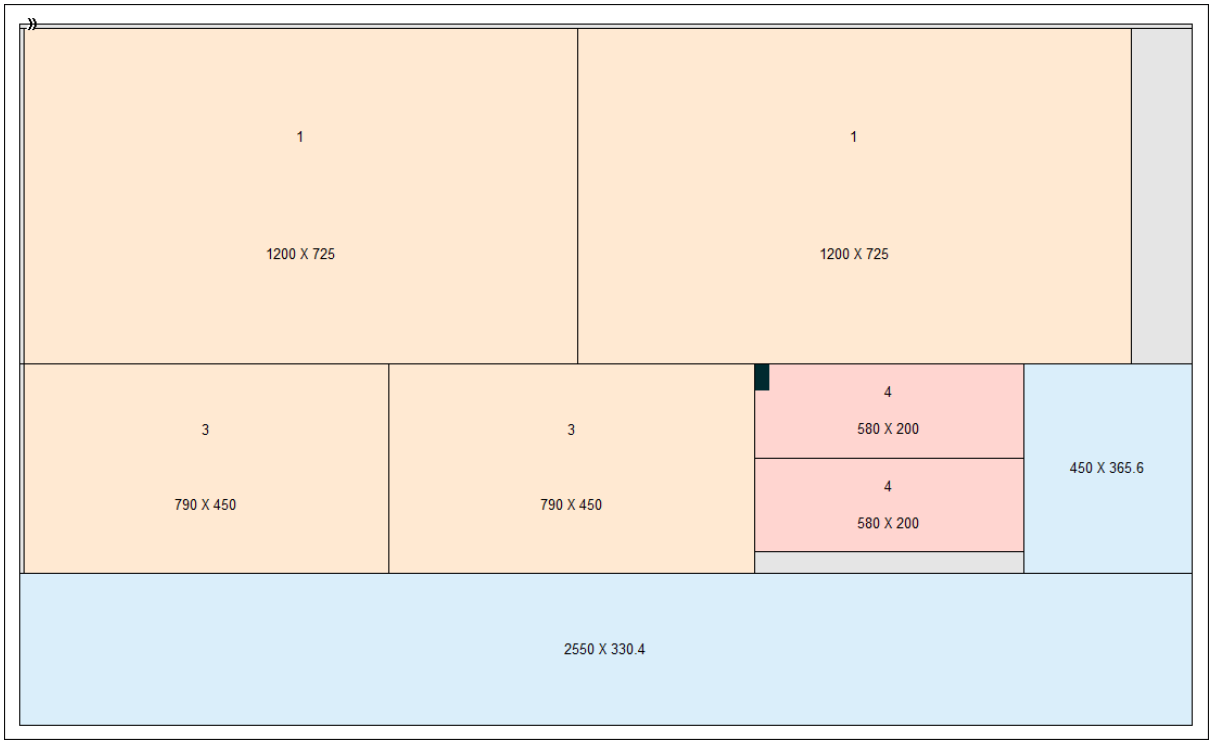
Pattern amendment - add part dialog

The ADD dialog automatically shows the number that fit in the length and width.

In this case the part was added from the part library as it was in the original part list.

It is also possible to use parts not from existing lists or enter a part sizes manually.

After checking the part select Ok to add



Pattern amendment – edit

Note - deleting a part from a pattern with run quantity of '5' deletes 5 of that part from the run.

Material - *the material of any added parts must match the board material.*

Pattern Amendment Summary

Manual editing of optimised patterns	•
Import of patterns	•
Addition of parts from the existing run	•
Addition of plus parts from the part library	•
Export of patterns	•

Machining interface

For fast set up of CNC machinery

Where parts contain additional machining such as grooves, routs, drilling and cut-outs the Machining interface module is used to create and store the part drawings (via the Machining library) and also send the correct machining instructions for each part to the CNC machining centres.

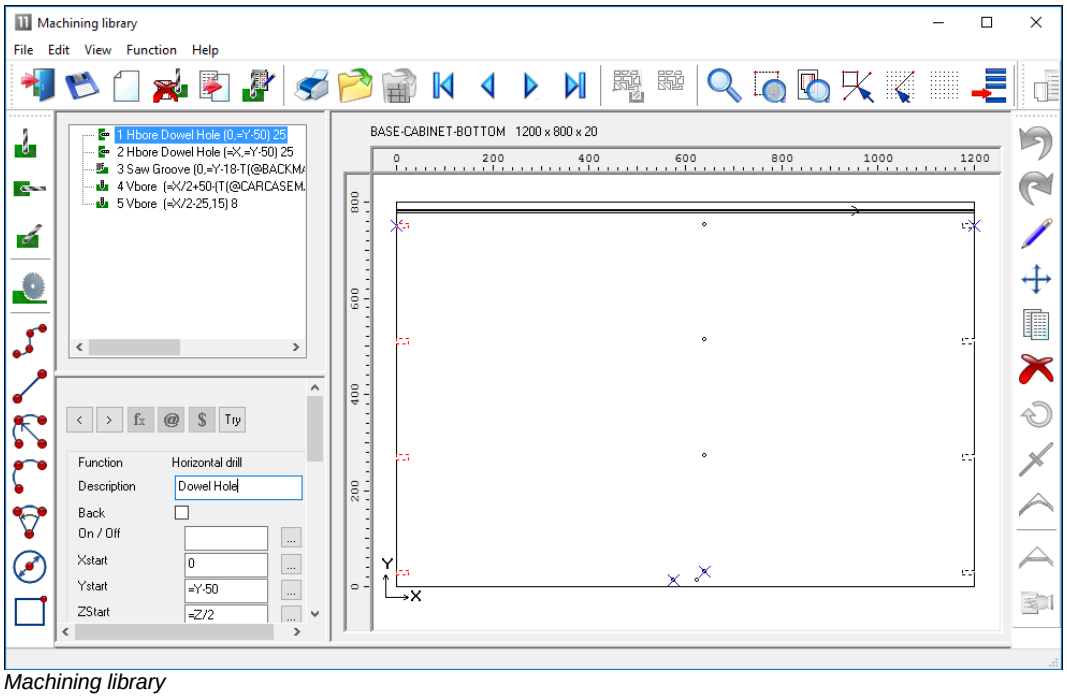
Most machining centre formats are supported including DXF, Homag/Weeke WoodWop, and other proprietary formats.

The MI module requires one of the Optimiser modules SO, PO or the Nesting optimiser (NE) fro shaped parts.

The machining editor provides full facilities for creating machining drawings. A wide variety of machining functions are provided:-

```
Saw groove
Horizontal drilling
Vertical drillings
Cut-outs
Arc router
Circle router
Pockets
Contours
Vacuum pods
...
```

The machining library contains the part drawing and instructions.



Machining library

The panes at the left show the details of each instruction and the full part is shown in the diagram at the right.

Drawings can be set up with formulae so they are fully parametric and automatically adjust if the part size changes. Common machining patterns can be dealt with by one drawing assigned to many different parts.

The above example shows a set of drilling and routing instructions for a part.

Machining Instructions **-** At the left of the screen is the FUNCTION toolbar to select the type of machining operation (such as drilling or routing).

Enter the details of each operation in the boxes to the right of the toolbar. The part drawing illustrating the machining is shown in the area to the far right of the screen. The drawing is built up as you enter machining operations.

For example, for a vertical drill operation enter the co-ordinates of the first hole - depth and diameter of the hole and the number, separation and direction of the repeated holes.

You can also enter the tool number and other machine specific details.

To move directly to a machine operation (for example to edit the details) click on the relevant part of the drawing. The current instruction is highlighted.

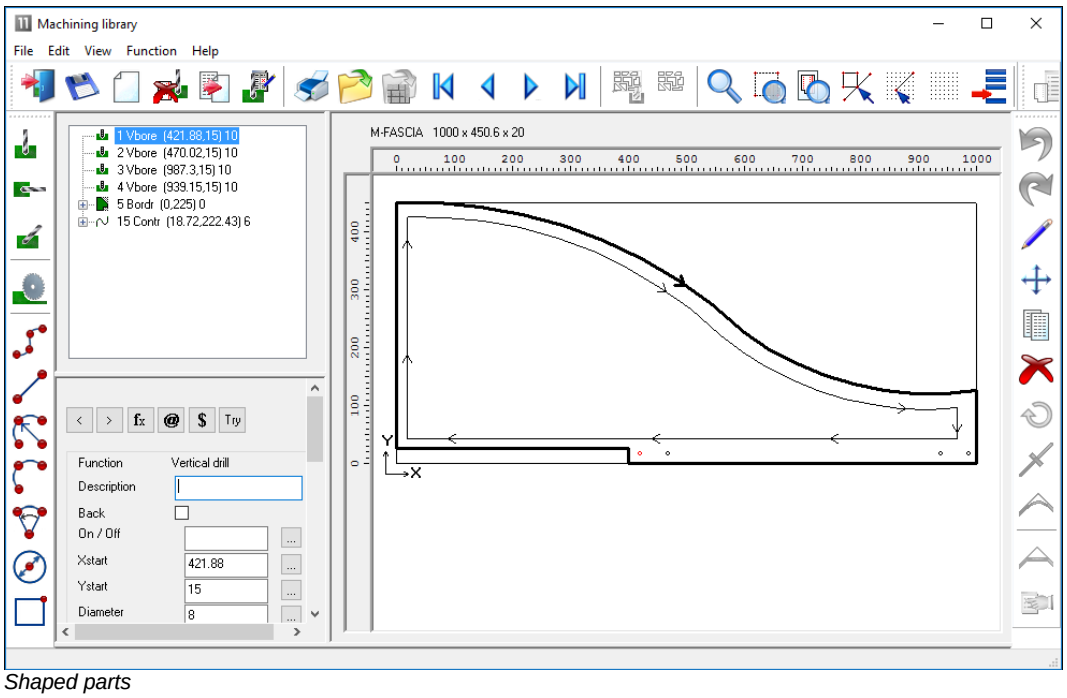
You can also use the mouse to enter instructions, for example, to specify the start and end of a groove.

External drawings – where the drawings are external files such as DXF or Homag/Weeke MPR(X) the Machining editor can still be used to view and adjust drawings and the drawing information is sent to a machining centre via the Machining Interface.

DXF drawings suitably layered can also be imported to the Machining library.

Shaped parts

The drawing editor allows for contours to define shaped parts.



Shaped parts

Each machining instruction can include extra tooling information to allow for tool speeds, tool path compensation etc.

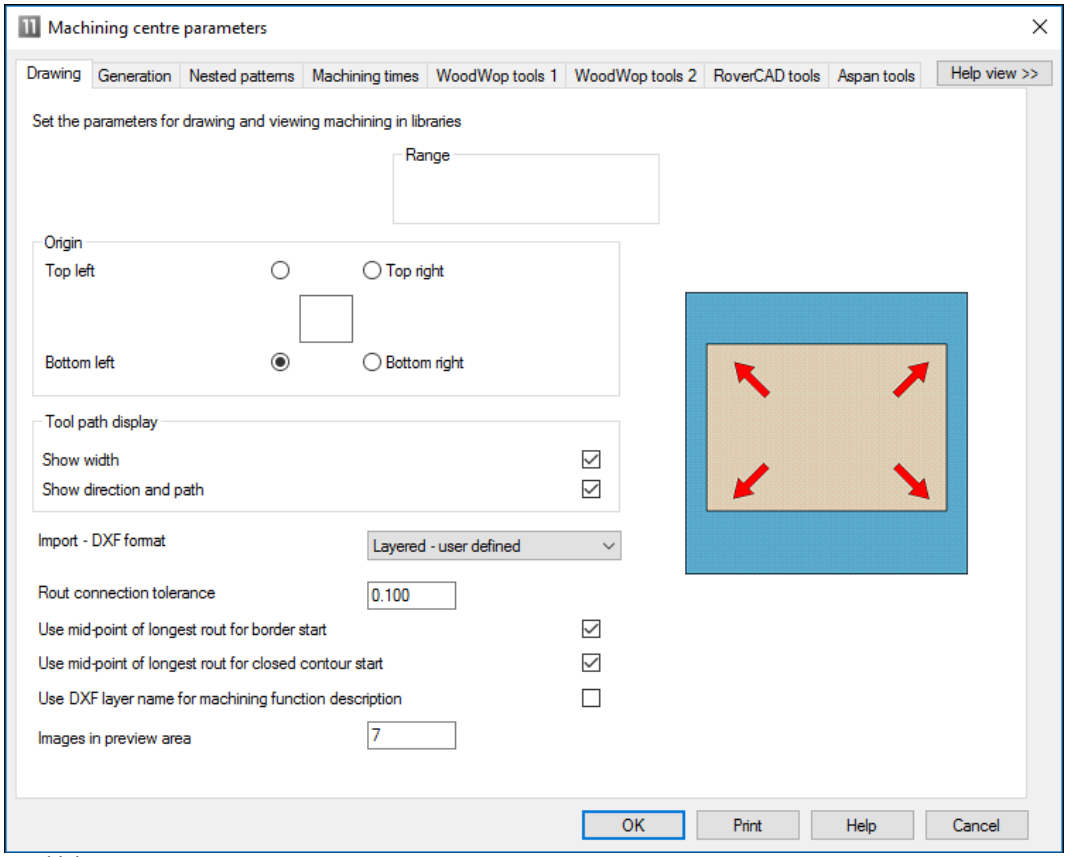
Use the mouse to quickly draw the function and use the boxes at the left to add the detailed measurements where required.

Machining parameters

The transfer of machining data to CNC machines is set up via the following parameters:-

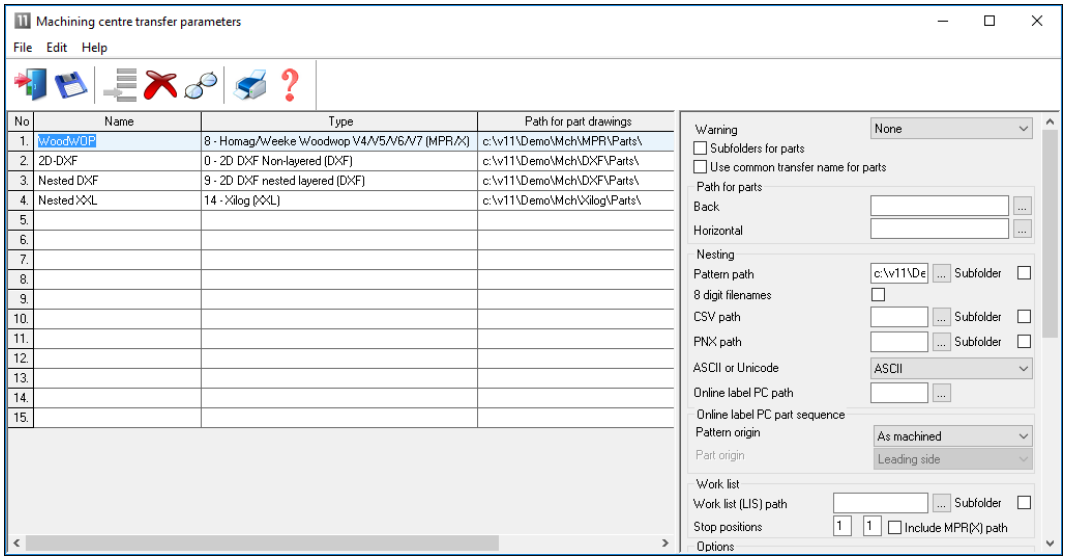
```
Machining centre parameters
Machining centre transfer parameters
```

The machining centre parameters set up the general features for the machining drawings/instructions such as the Drawing origin, and specific features for proprietary machines such as the 'Park mode' for Homag/Weeke WoodWop.



Machining centre parameters

The Machining centre transfer parameters control the transfer of data to the machining centre. File format, where files are located and whether there are separate files for Front and Back instructions.



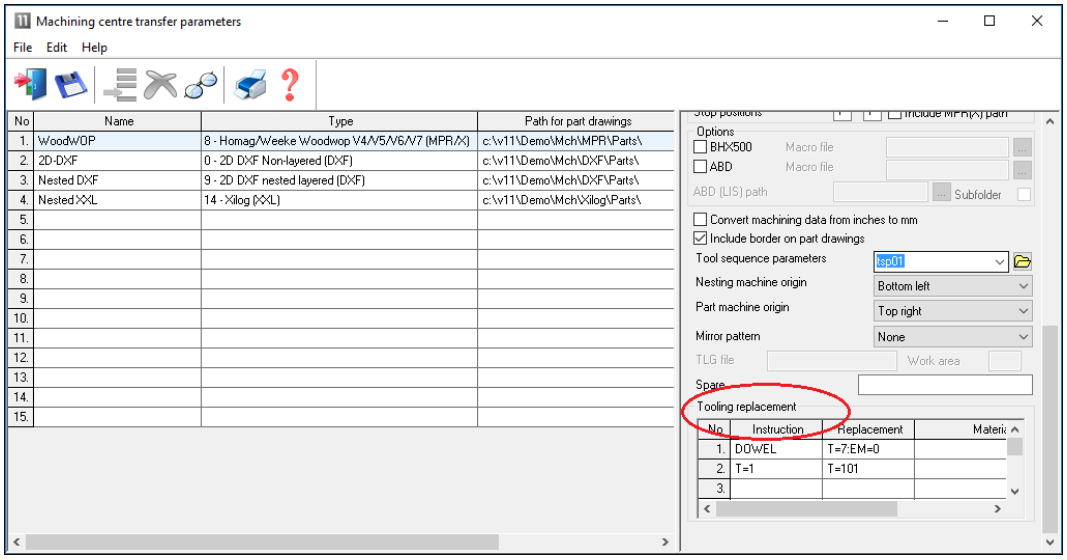
Machining centre transfer parameters

A wide range of transfer formats are supported:-

```
Homag/Weeke WoodWop V4/V5/V6/V7 (MPR(X))
Homag Weeke WoodWop V2.5 (MPR)
2D DXF non layered
2D DXF layered
D DXF layered
```

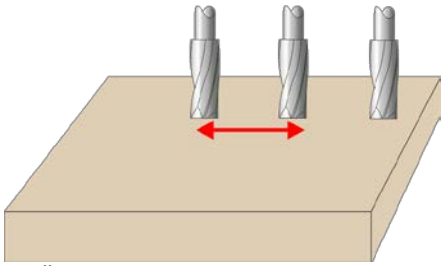
```
Biesse RoverCad (CID)
Morbidelli Aspan V3.2 (ASC)
Morbidelli Aspan V4.0 (ASC)
Busellato Autolink (DXF)
ASCII/Unicode PTX
MDB  PTX
```

The machining centre transfer parameters also include a 'Tooling replacement table', so that tooling instructions can be translated to a specific format for a machine. This allows for a single set of drawings which can then be interpreted for different CNC machines.



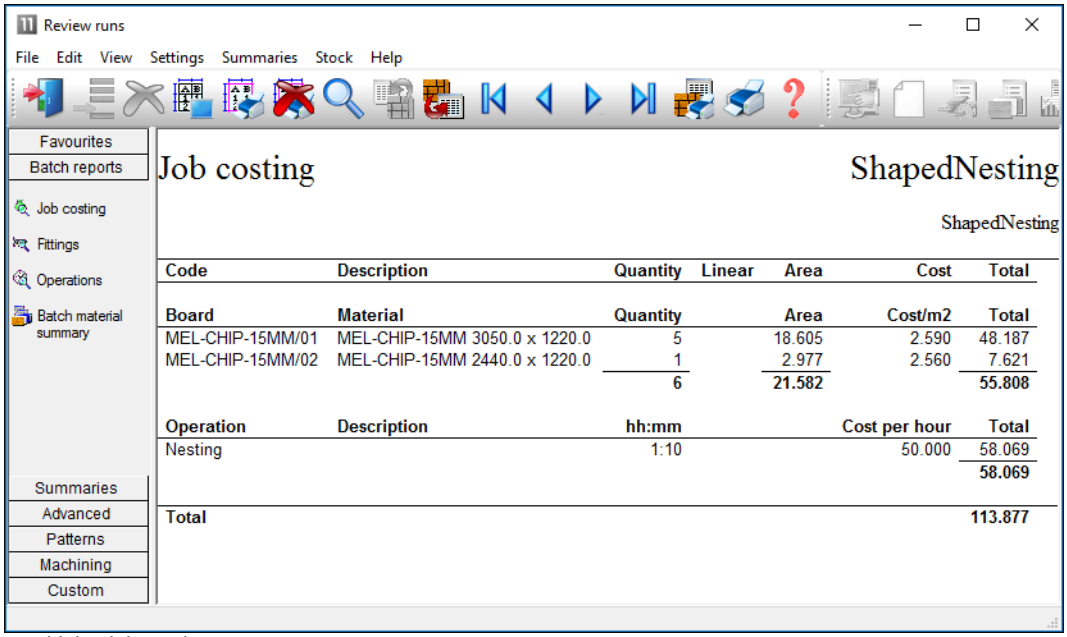
Machining centre transfer parameters Tooling

For most parameters there is a clear picture of the setting involved and examples of the set up.


Tooling

Machining summary and costs

The summary reports in Review runs, for example, Job costing, include the details for machining where these are relevant.

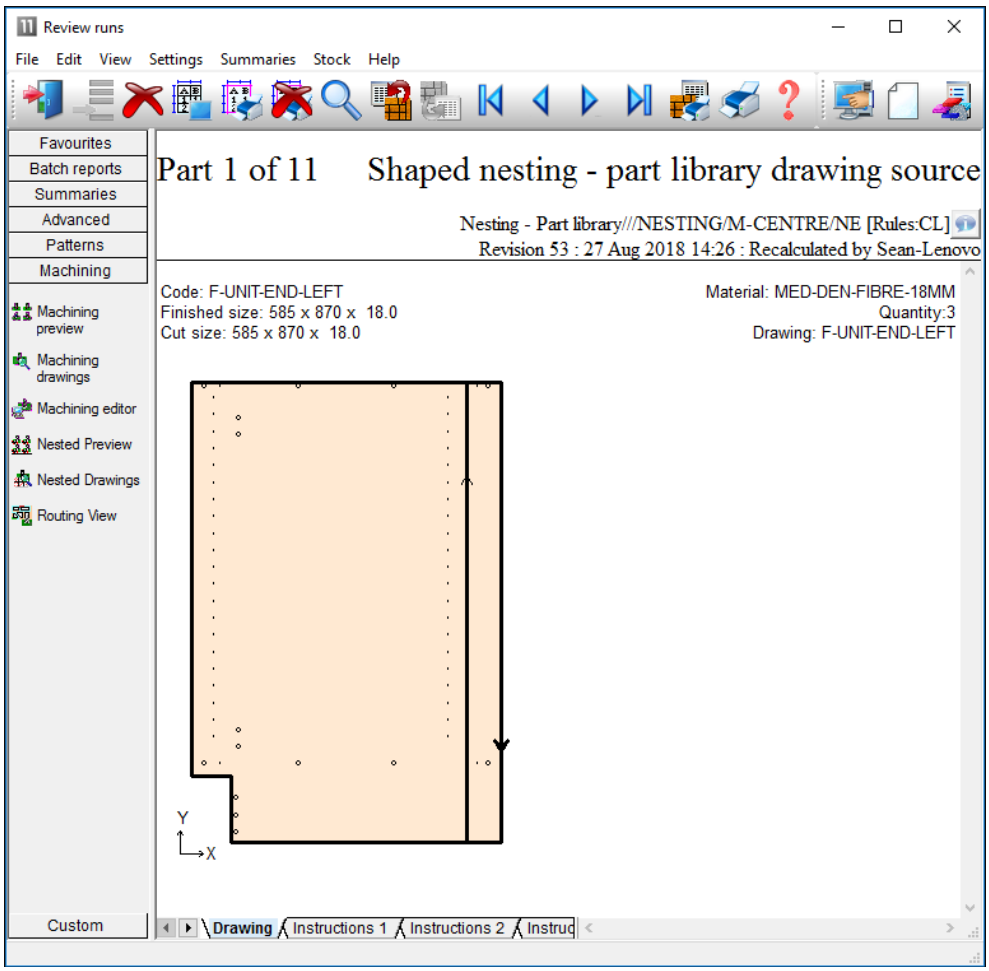


Machining job costing report

There are several specific reports and optiosn for Machining under the ‘Machining’ tab.

<u>Machining drawing</u>

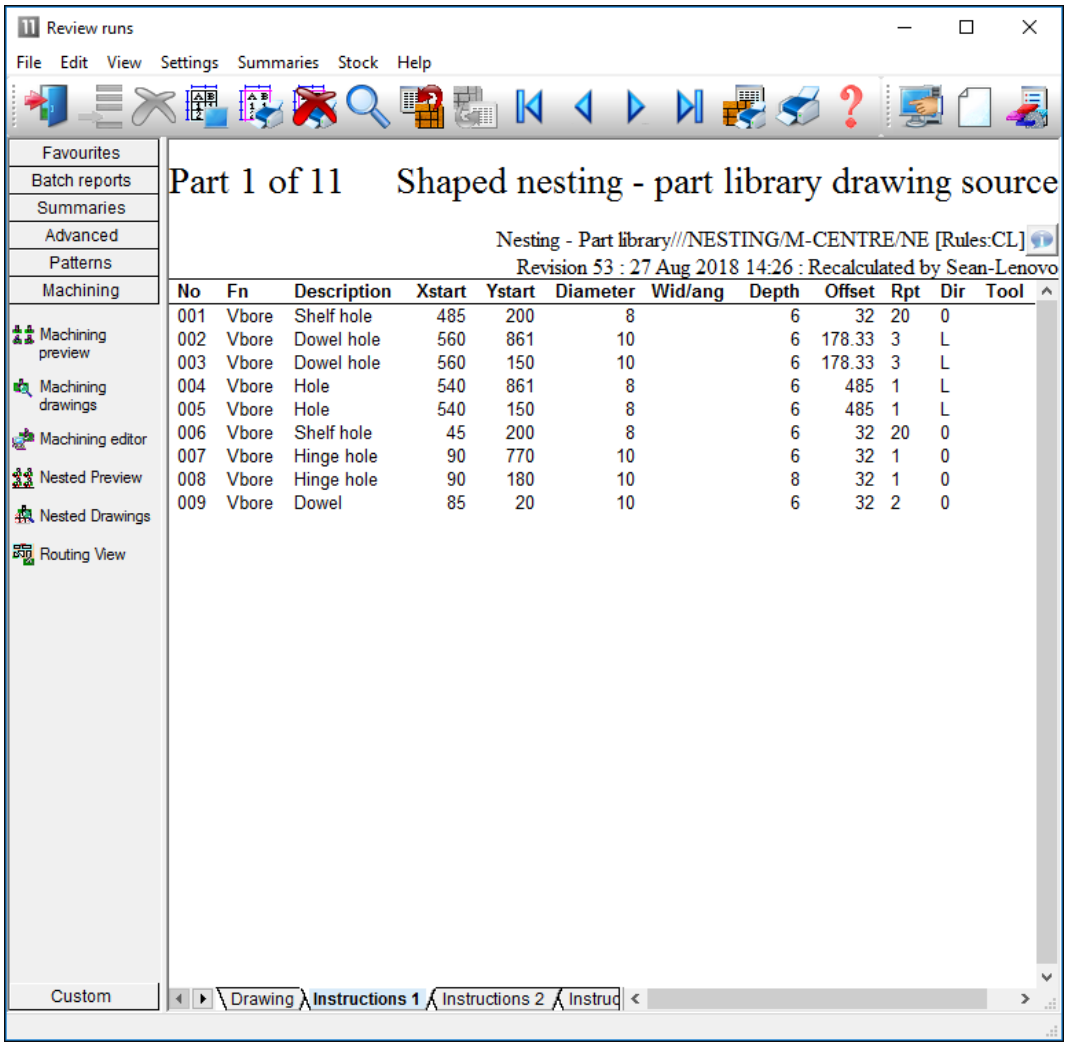
The machining drawing shows each drawing fully resolved.



The drawing shown has been resolved to absolute values fready for transfer.

Machining Instructions

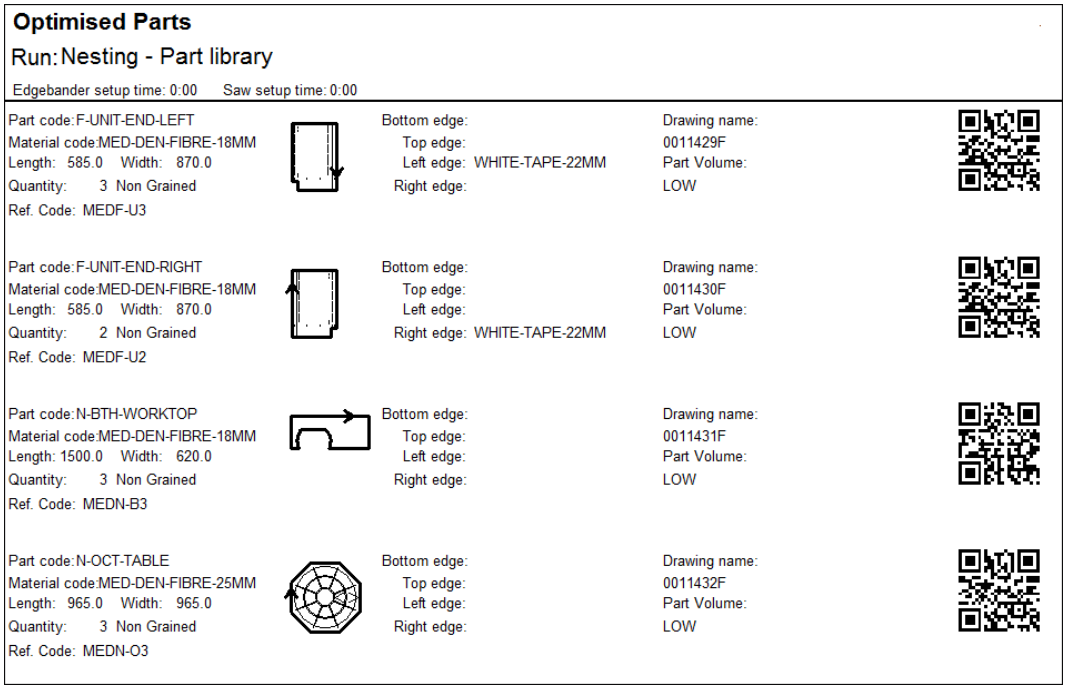
At the foot of each machining drawing are a set of tabs showing the full machining instructions.



No	Fn	Description	Xstart	Ystart	Diameter	Wid/ang	Depth	Offset	Rpt	Dir	Tool
001	Vbore	Shelf hole	485	200	8		6	32	20	0	
002	Vbore	Dowel hole	560	861	10		6	178.33	3	L	
003	Vbore	Dowel hole	560	150	10		6	178.33	3	L	
004	Vbore	Hole	540	861	8		6	485	1	L	
005	Vbore	Hole	540	150	8		6	485	1	L	
006	Vbore	Shelf hole	45	200	8		6	32	20	0	
007	Vbore	Hinge hole	90	770	10		6	32	1	0	
008	Vbore	Hinge hole	90	180	10		8	32	1	0	
009	Vbore	Dowel	85	20	10		6	32	2	0	

At Review runs the instructions are resolved to absolute values.

With the parts and labels feature route cards or labels for each machined parts can be printed at the office.



Optimised Parts

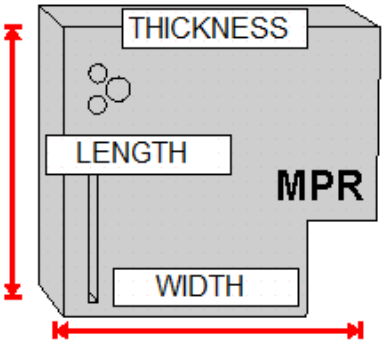
Run: Nesting - Part library

Edgebander setup time: 0:00 Saw setup time: 0:00

Part code: F-UNIT-END-LEFT Material code: MED-DEN-FIBRE-18MM Length: 585.0 Width: 870.0 Quantity: 3 Non Grained Ref. Code: MEDF-U3	Bottom edge: Top edge: Left edge: WHITE-TAPE-22MM Right edge:	Drawing name: 0011429F Part Volume: LOW	
Part code: F-UNIT-END-RIGHT Material code: MED-DEN-FIBRE-18MM Length: 585.0 Width: 870.0 Quantity: 2 Non Grained Ref. Code: MEDF-U2	Bottom edge: Top edge: Left edge: Right edge: WHITE-TAPE-22MM	Drawing name: 0011430F Part Volume: LOW	
Part code: N-BTH-WORKTOP Material code: MED-DEN-FIBRE-18MM Length: 1500.0 Width: 620.0 Quantity: 3 Non Grained Ref. Code: MEDN-B3	Bottom edge: Top edge: Left edge: Right edge:	Drawing name: 0011431F Part Volume: LOW	
Part code: N-OCT-TABLE Material code: MED-DEN-FIBRE-25MM Length: 965.0 Width: 965.0 Quantity: 3 Non Grained Ref. Code: MEDN-O3	Bottom edge: Top edge: Left edge: Right edge:	Drawing name: 0011432F Part Volume: LOW	

With the pattern editor last minute adjustments can be made to any drawing before sending the data to the CNC machining centre.

External drawings - The drawing editor and transfer of data to a CNC machine can be integrated with the use of external drawing files such as DXF and MPR(X).



In this case the stand-alone drawings can be used with parts so items do not have to be duplicated in the machining library or drawn twice.

Summary of Machining Interface

	MI
Machining Drawings	99999
Machining functions (drill, route, …)	•
Support for proprietary formats	•
Support for DXF	•
Transfer to Machining centre	•
Shaped drawings	•
Labels for drawings	•
Parametric drawings	•

Forms & Labels

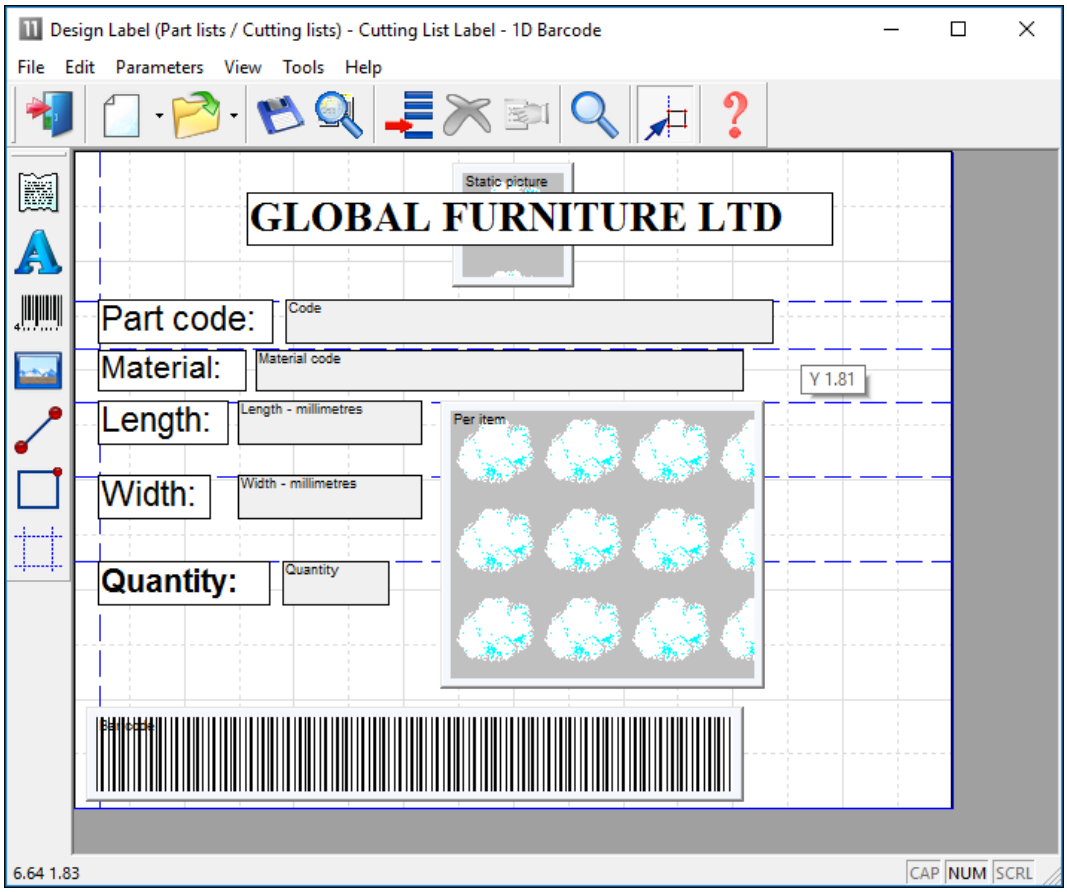
Use the Design options to create templates for forms and labels. Labels are typically for printing labels in the office for parts or products but also can be used to design labels for the Cadmatic saw controllers or the Online PC saw interface for labels at the saw.

Forms are typically for adding brand new custom forms to Review runs or providing a full set of order or stock documentations; Invoices, despatch notes, worksheets …

Types of forms or labels available to create:-

```
Quotes / Orders
Product requirements
Part lists / Cutting lists
Cutting patterns
Runs
Saw (for labels only)
```

The following example shows a design for a label at the Design screen.



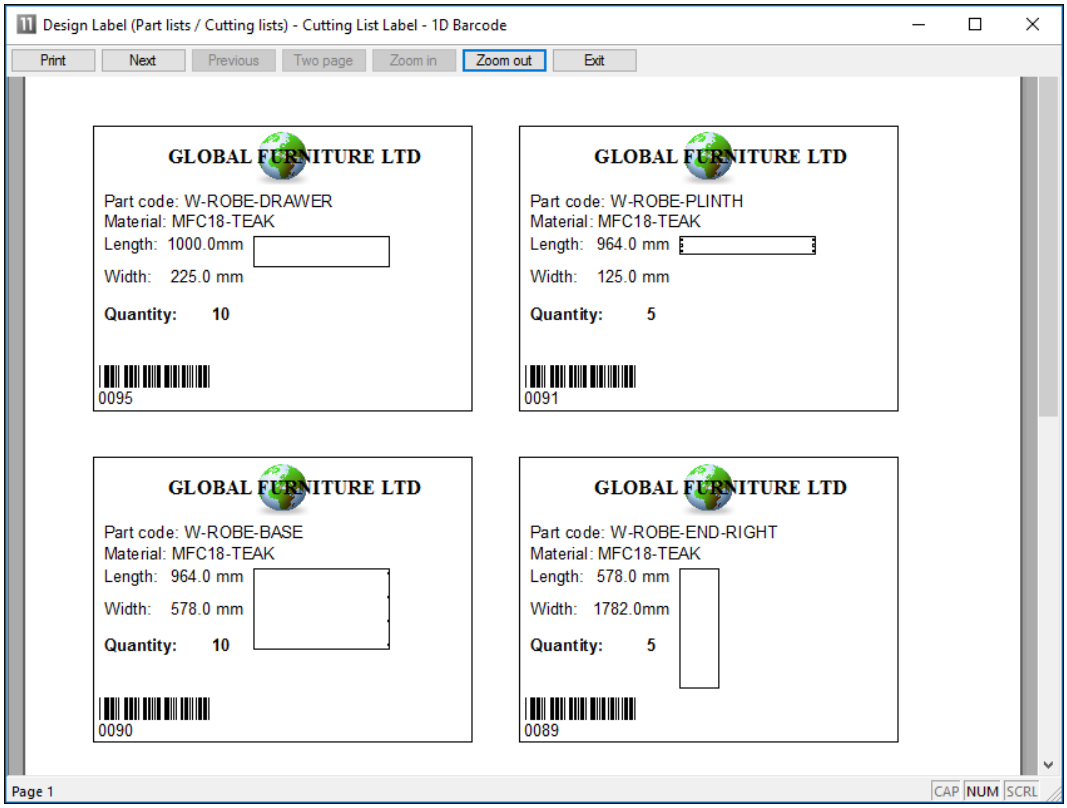
Label design

To design a form or label create a template that describes the items of information (objects) on the label or form; where they are placed and special effects such as pictures or colour. Once the template is saved it can be used by the program for printing that style of label or form.

Many users typically only need one or two templates for all their part and product labels but may need several templates for forms such as invoices, despatch notes, waybills and so on.

Standard templates **-** There are several standard templates supplied with the software which you can use as a starting point for your templates. Use the SAVE AS option to take a copy of the standard form and always make changes to the copy.

The form or label design can be previewed to see what the design looks like.



Preview of printed labels

When creating a NEW design use the OBJECT TOOLBAR (at the left) to place label design elements on the label. The main elements are:-

- Text boxes - fixed text to describe the data
- Data boxes - for the variable data (e.g. part codes)
- Lines - to draw lines on the label
- Picture boxes - for part drawings or logos
- Barcode boxes - for bar codes (e.g. bar code for part code and quantity)

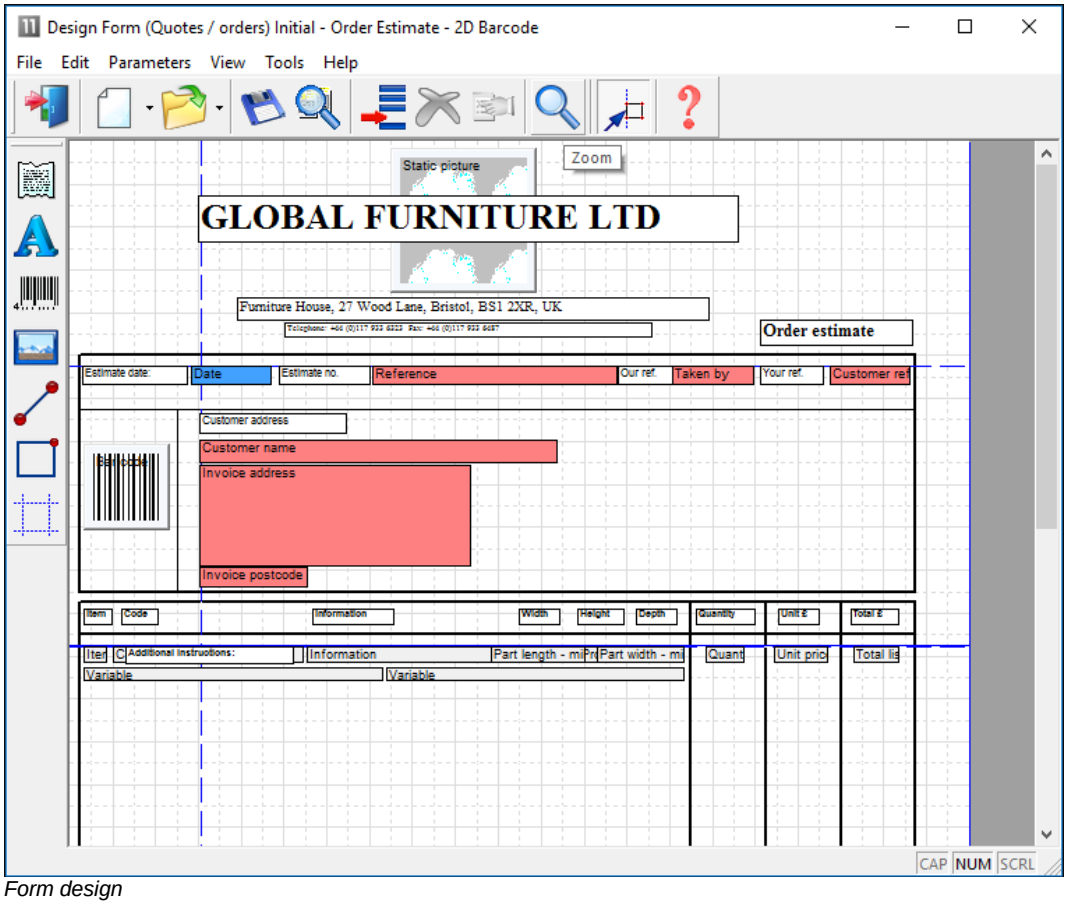
Use the properties box to change any features, for example, to fine tune the position of the item.

The forms or labels can be set up to print in a wide variety of layouts; continuous, 2 per page …

Printed labels

Forms

Design a form in the same way as a label - the main differences are that a form (like an invoice) usually contains a section with a list of varying data items (e.g. products and prices) and uses page numbers, headings, and continuation pages etc.



Form design

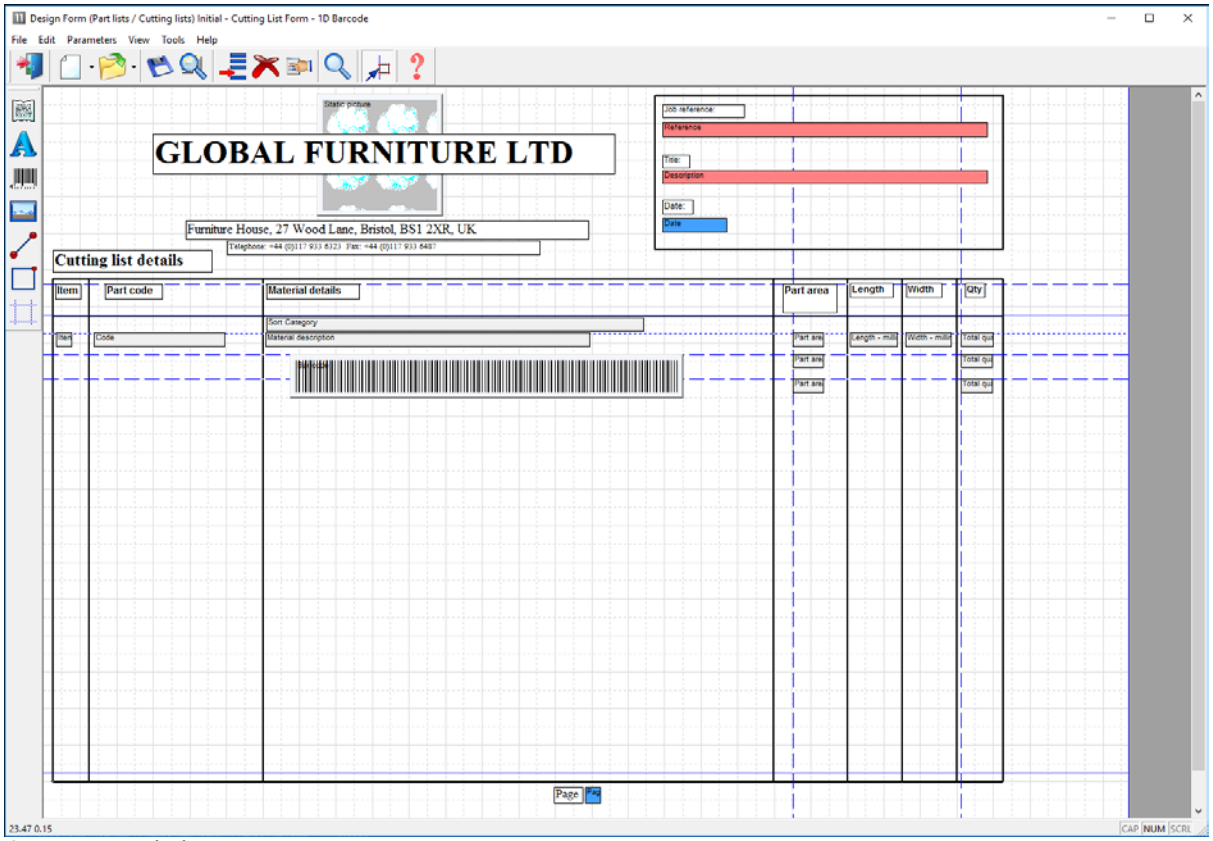
The page size, margins and other general features can be configured for each form or label from the parameters menu.

With labels set the frequency with which labels are produced, per part, per part type, per stack etc.

Custom Reports / Summaries

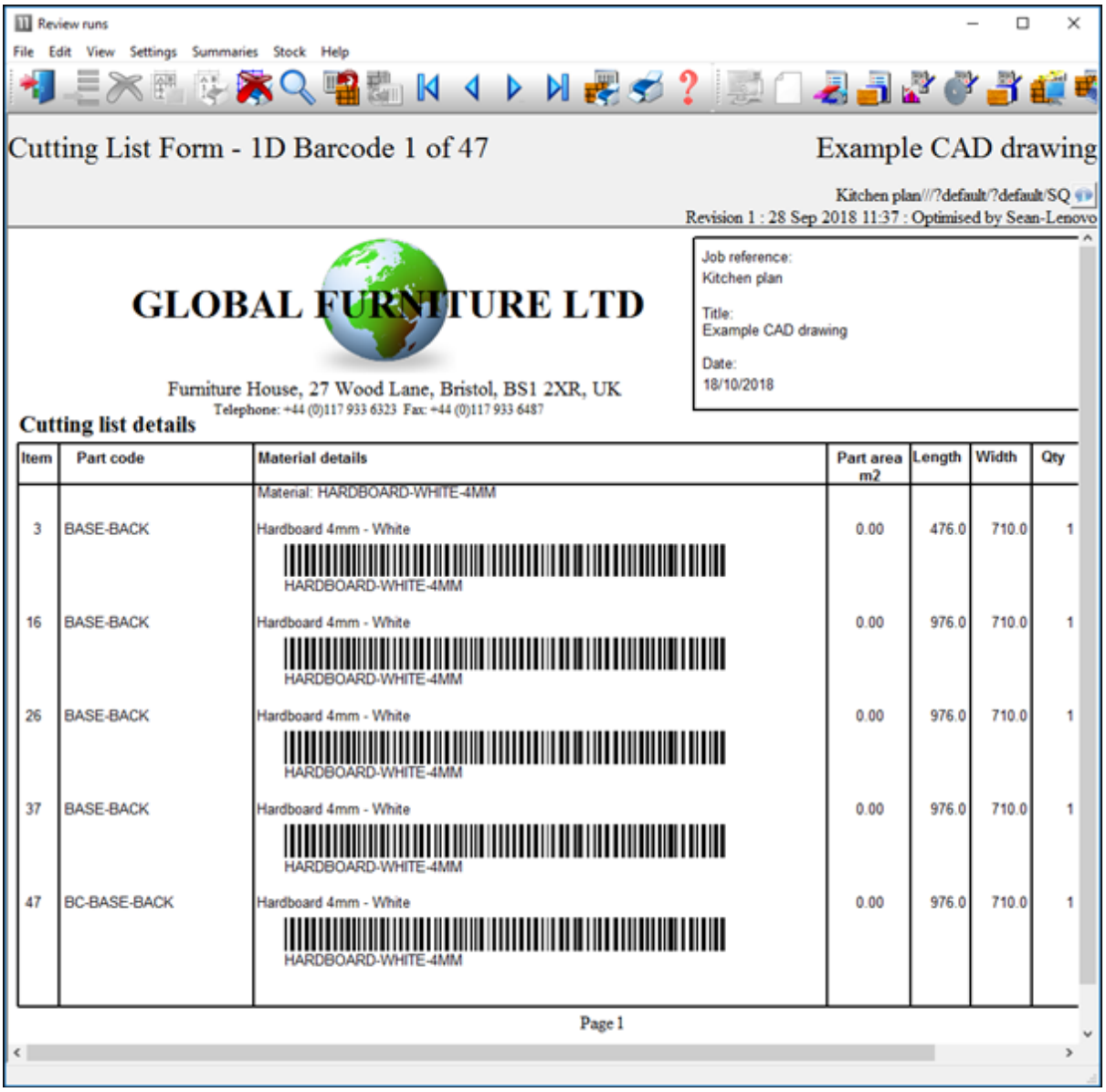
Form design can also be used to create fully customised reports for runs (optimising results). This can be useful for tailoring documents to suit the production process. Emphasising important data, removing details, matching the order of data to the company standard …

Here is part of a design for a custom report for a cutting list summary.



Custom report design

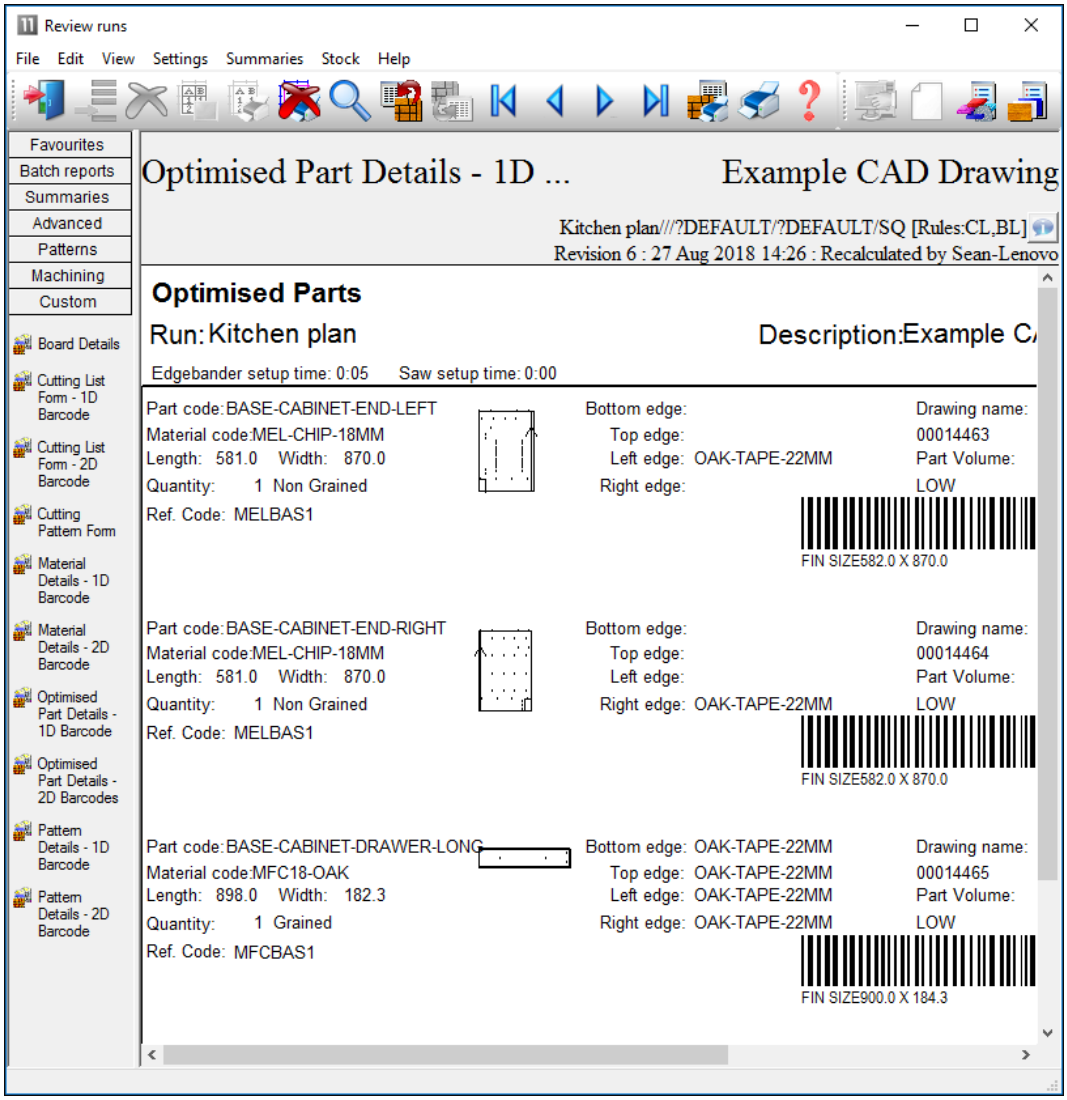
The layout and information on the report can be fully customised. The above design produces the following style of report or summary.



Custom reports in Review runs

For run based custom reports it is often more convenient to integrate the reports in Review runs so that they appear on the Report bar - like any other report.

Any reports created via this option are automatically added to the report bar under the 'Custom' tab.



Custom report

These reports can also be accessed from the main screen as forms (*Print - Forms - Runs*).

Forms and Labels Summary

Create custom forms	•
1D and 2D barcodes supported	•
Template form and labels supplied	•
Local Integrated help	•

Saw Interface

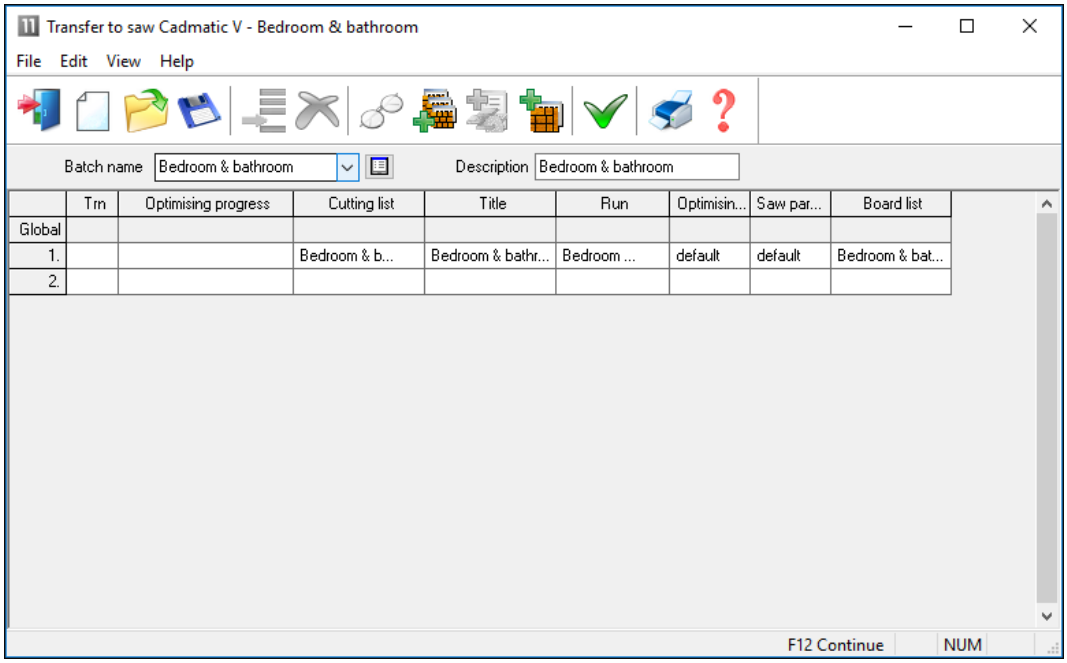
Transfering optimised patterns (cutting instructions) to the saw.

The program supports a wide range of saw controllers:-

- Cadmatic (all types)
- Compumatic
- Topmatic
- Giben
- Schelling – (Commander 2 and Commander 4 – MCS)
- Homag Sawtech (CHxx, NPS400, Ilenia)
- Table saws
- Online PC
- Various other controllers
- Printed patterns and cutting instructions for manual saws

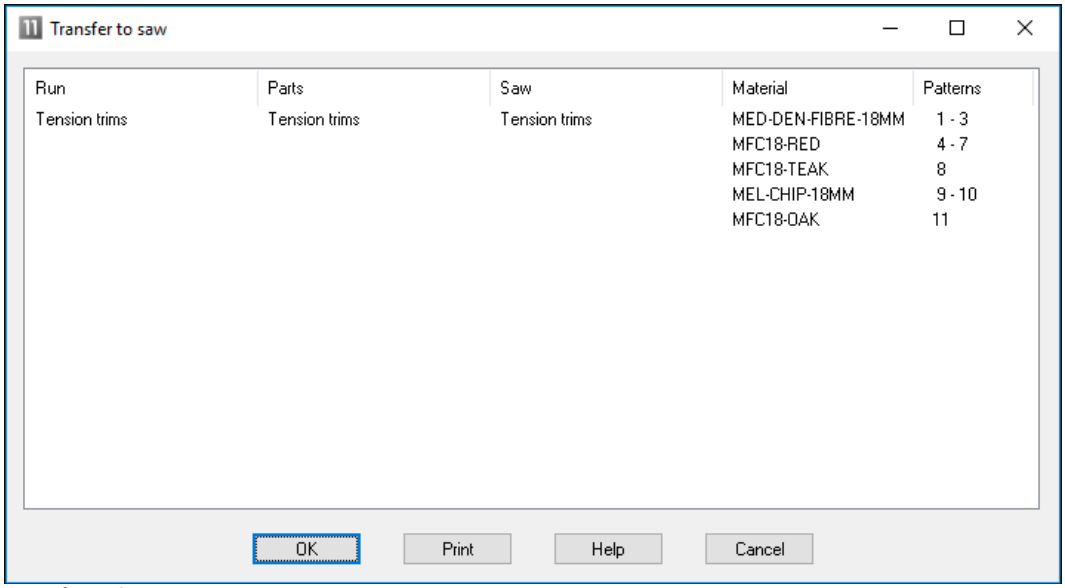
Saw Transfer

Once selected, the saw transfer program prompts with the current job.



Transfer to saw batch screen

After job selection and confirmation, the program displays the data it will transfer.



Transfer to Saw

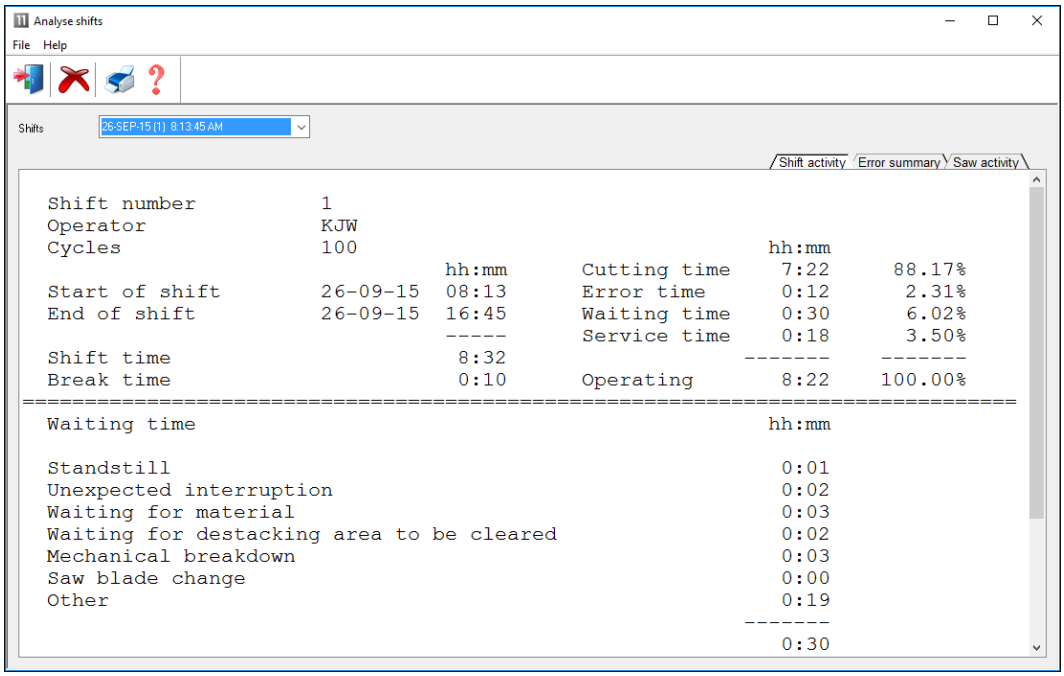
The transfer is finished once this data is confirmed.

Note - For practical use the saw transfer and machining transfer need to be set up for the company's machines. There are parameters for this and a wide range of options are available.

Typically the saw or machining centre transfer sends data to a location on the Network (Path for Saw data) and a separate program provided by the machinery manufacturer runs and sends the data to the machine. This can all be integrated into the above transfer process.

Analyse Shifts

Some saw controllers can record information as the saw is working. There are reports to analyse this data on a shift basis or to analyse each run. Use this option to analyse the feedback from the saw for each shift.



Analyse shifts summary

At the top are the shift number, operator's initials and the number of saw cycles during the shift. The other information shows the start and end of the shift and the total elapsed shift time. The analysis of the time is split between the following categories:

```
Shift time    - total duration of shift
Cutting time  - time that the saw is cutting
Error time    - down time recorded against saw errors
Service time  - time for service operations (e.g. change saw blade)
Waiting time  - saw not in use
```

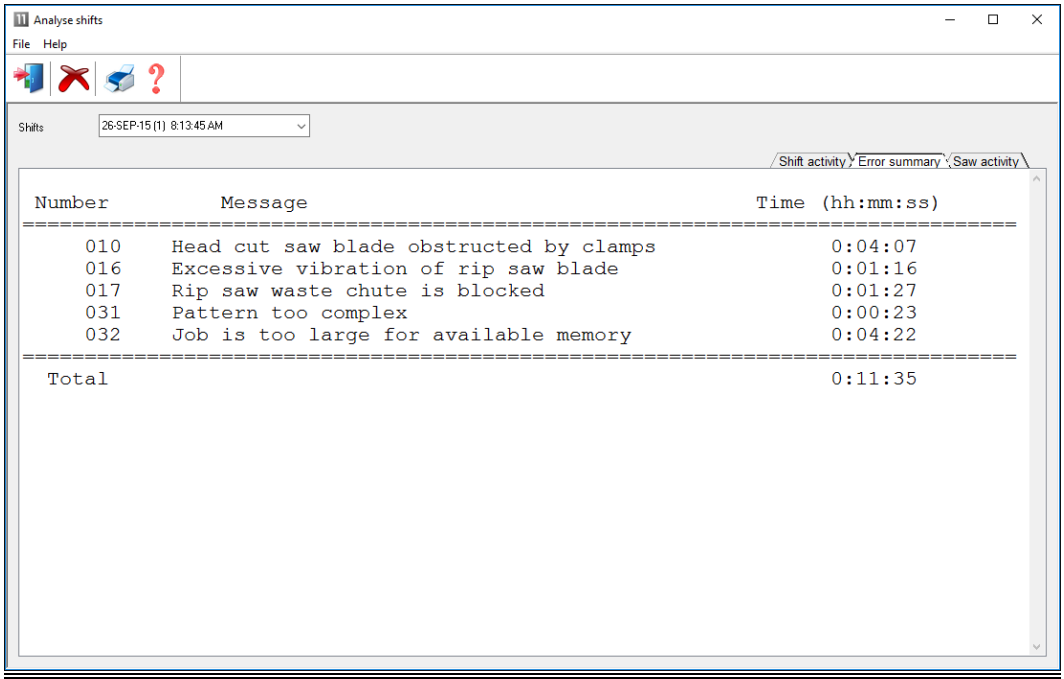
Waiting time = Op time - cutting - error - service
Break time - operator's break (for example: meals, rest)
Operating time - shift time less break time: *Op time = shift - break*

At the foot of the report is the material usage during the shift. This shows the area of parts and board processed during the shift.

- Click on the tabs at the top right to see more details. The reports available are:-

- Saw activity - shows the full details of each cutting cycle

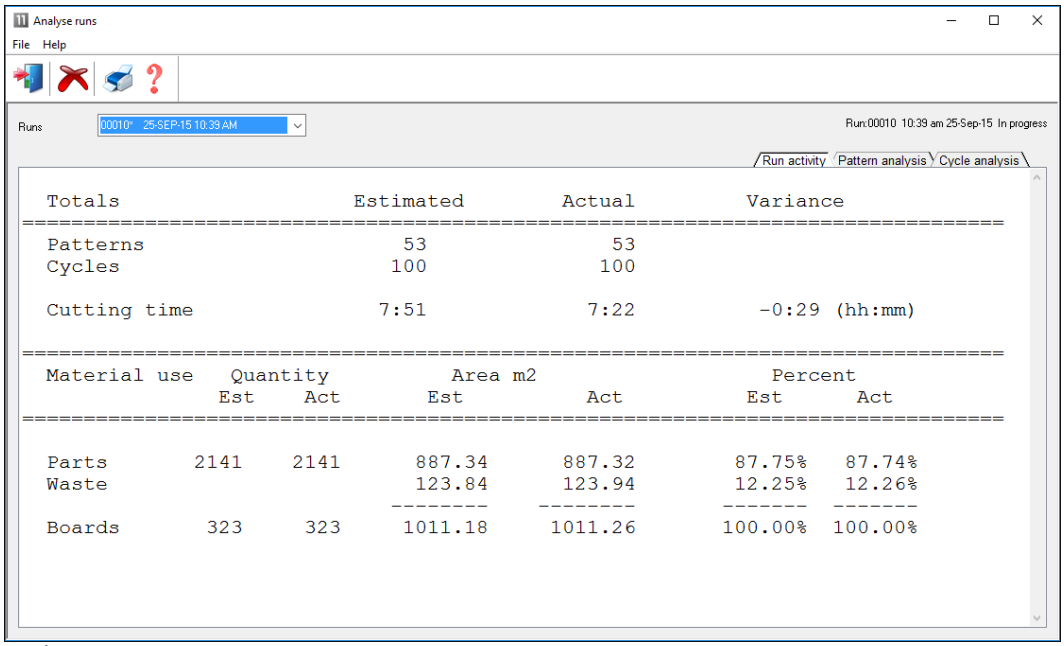
- Error summary - shows any errors and the cause



Analyse shifts summary of errors

Analyse runs

The feedback data from the saw can also be analysed in terms of runs, that is, comparing the estimated values for a run with the time actually taken at the saw.

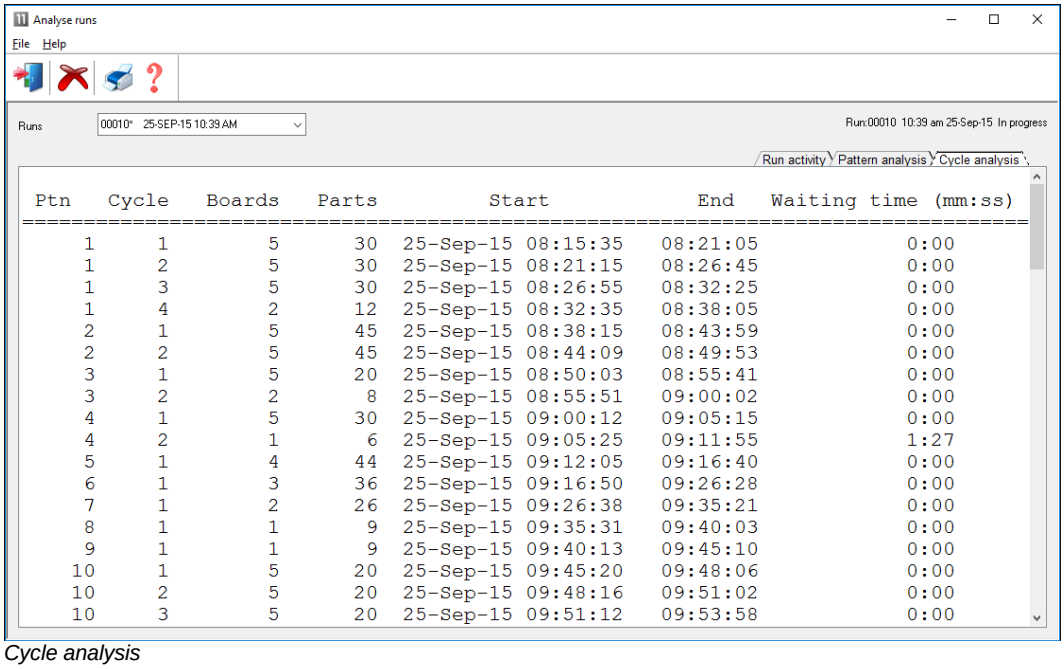


Analyse Runs summary

The 'Est' and 'Act' columns show the difference between the estimated values and the actual values. In this case the parts produced and waste were the same but the actual cutting time was shorter than estimated.

- Click on a tab at the top right for more detailed reports, that show the differences on a per pattern and per cycle basis, for example:-

Cycle analysis



Ptn	Cycle	Boards	Parts	Start	End	Waiting time (mm:ss)
1	1	5	30	25-Sep-15 08:15:35	08:21:05	0:00
1	2	5	30	25-Sep-15 08:21:15	08:26:45	0:00
1	3	5	30	25-Sep-15 08:26:55	08:32:25	0:00
1	4	2	12	25-Sep-15 08:32:35	08:38:05	0:00
2	1	5	45	25-Sep-15 08:38:15	08:43:59	0:00
2	2	5	45	25-Sep-15 08:44:09	08:49:53	0:00
3	1	5	20	25-Sep-15 08:50:03	08:55:41	0:00
3	2	2	8	25-Sep-15 08:55:51	09:00:02	0:00
4	1	5	30	25-Sep-15 09:00:12	09:05:15	0:00
4	2	1	6	25-Sep-15 09:05:25	09:11:55	1:27
5	1	4	44	25-Sep-15 09:12:05	09:16:40	0:00
6	1	3	36	25-Sep-15 09:16:50	09:26:28	0:00
7	1	2	26	25-Sep-15 09:26:38	09:35:21	0:00
8	1	1	9	25-Sep-15 09:35:31	09:40:03	0:00
9	1	1	9	25-Sep-15 09:40:13	09:45:10	0:00
10	1	5	20	25-Sep-15 09:45:20	09:48:06	0:00
10	2	5	20	25-Sep-15 09:48:16	09:51:02	0:00
10	3	5	20	25-Sep-15 09:51:12	09:53:58	0:00

Cycle analysis

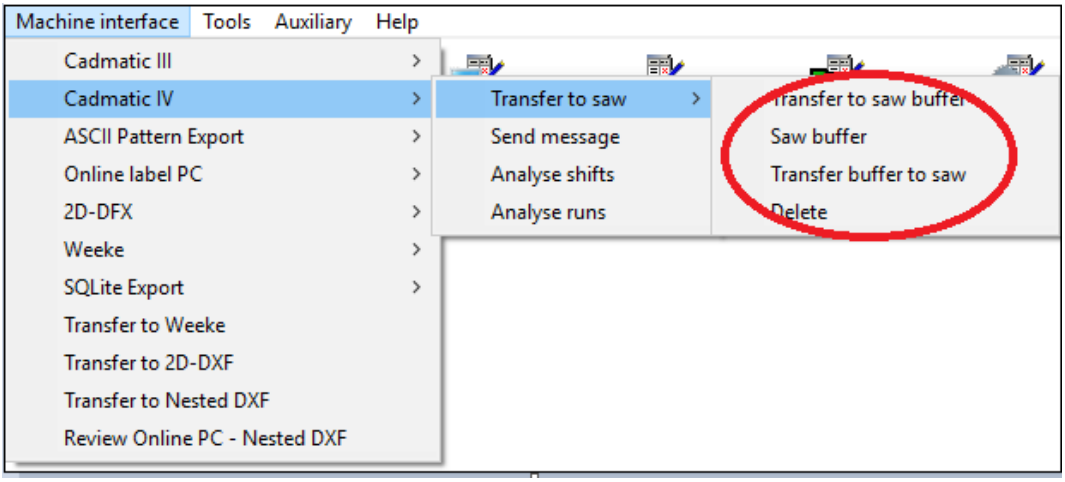
The Saw interface feature also includes an option to communicate and send messages to the saw during operation.

Saw Buffer

When transferring data to the Saw with multiple users it can be useful to set up the Saw transfer so that only one user acts as the master location for sending data to the saw. This allows the various incoming runs to be sorted in a buffer and sent to the saw in a more controlled way.

This is set by a Saw transfer parameter: 'Saw buffer'.

If this way of working is set up the saw interface menu (for the master user) contains extra options for managing the saw data.



Buffered transfer to saw

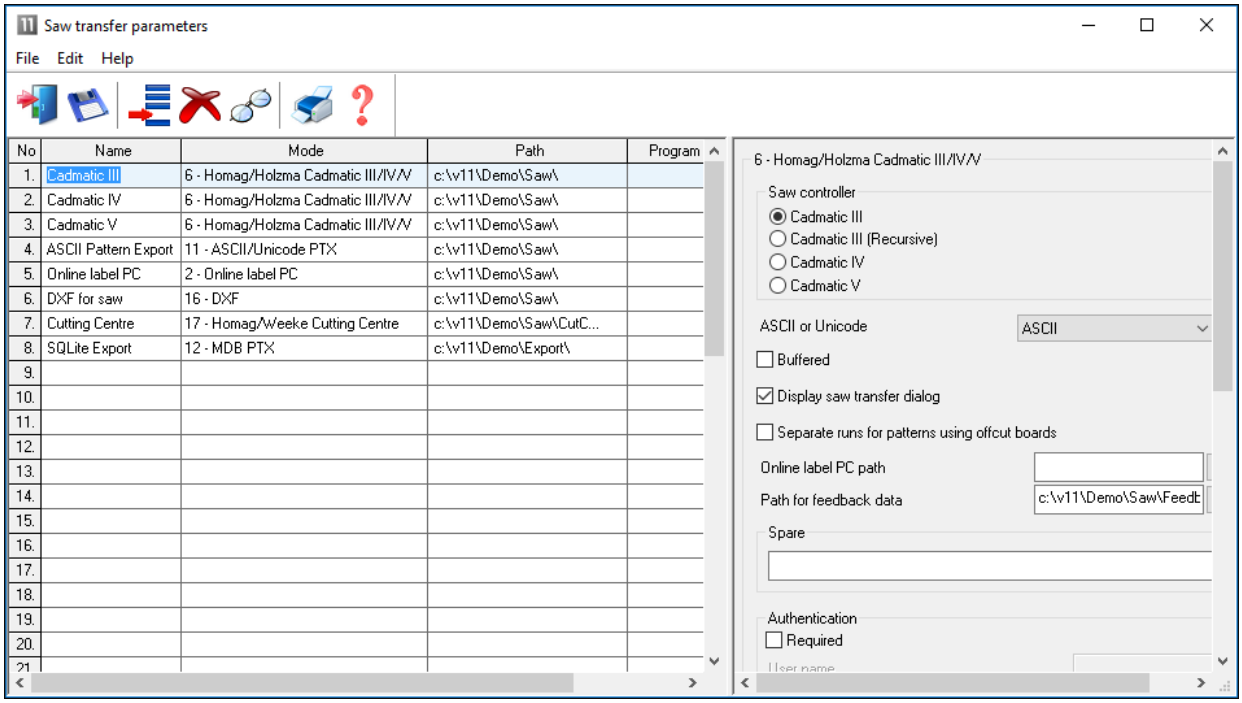
The options are:-

```
Transfer to saw buffer
Saw Buffer
Transfer buffer to saw
Delete
```

Saw transfer parameters

The various links to the saws are set up with the *Saw transfer parameters*. Use one row for each saw.

There are many different types of saw and saw controller and the parameters are often very different for each type. The first thing to set is the MODE which determines the overall type of saw. e.g. Homag/Holzma Cadmatic III/IV.



Saw transfer parameters

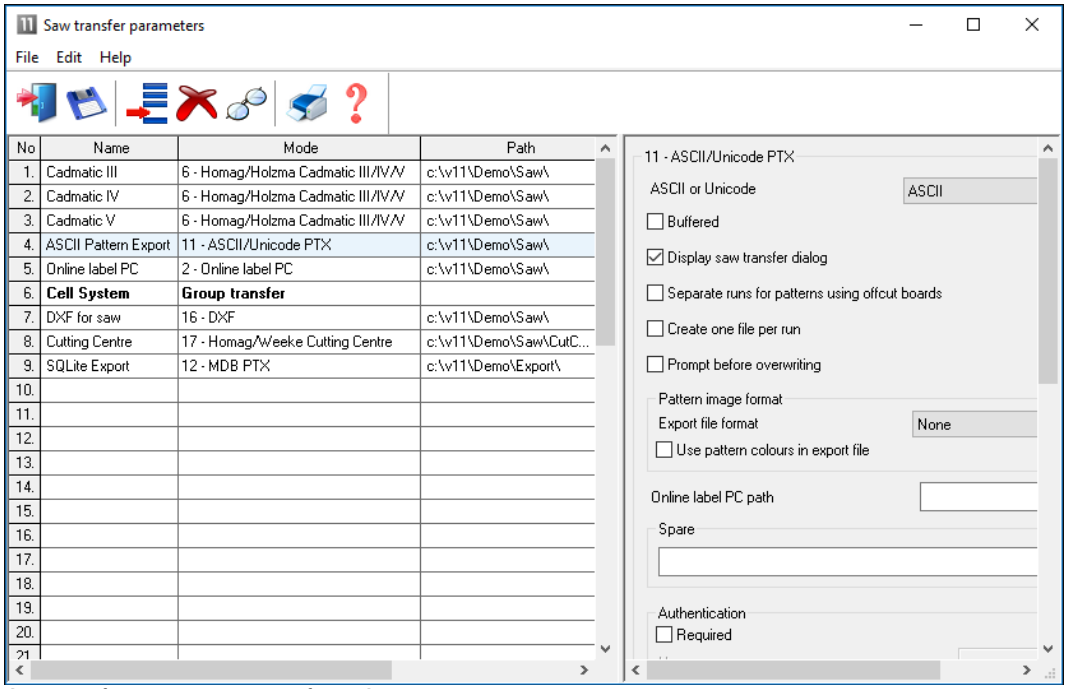
For each row there are extra parameters in the right hand pane to allow for the accurate set up of each saw and its proprietary settings.

All the saw types set up via these parameters are shown as options on the Machine Interface menu.

Most suppliers now provide typical examples of how to set the Saw transfer parameters for their types of saw and controller.

Transfer to Groups

The Saw transfer parameters do not only apply to saws and can be used to transfer data to a group of machines on a flow line, for example, a Homag/Holzma Saw and Homag Automation destacking machine, using the 'Group transfer' option.



Saw transfer parameters - transfer to Group

The machines in the group and the order of the machines are set up via the Saw transfer parameters. There are extra options in the right hand pane to set up the communication link for each machine on the Network.

The Group option appears as an item on the Machine interface menu at the main screen and this can then be used like any other transfer option to send data to all the machines in the group; this ensures the same data is sent to each machine and it is correctly co-ordinated.

This type of transfer is only suitable for transfer modes where export file names are unique and create 'one file per run'. The pattern exchange transfer format (PTX) is typically used for sending data to other machines such as Homag, Homag Automation etc.

Saw Interface summary

Transfer data to groups of machines	•
Configurable transfer methods for multiple saws	•
Shift, Run and Cycle analysis	•
Export data to a variety of formats	•