

Destacking and Palletisation

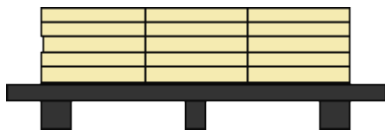
Efficient offstacking and faster through flow

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

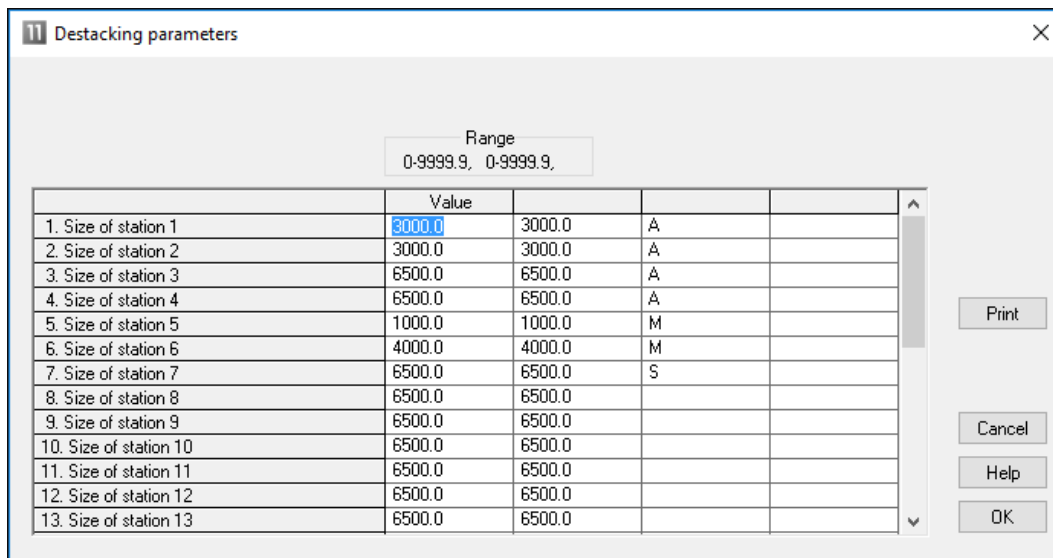
Each location around the saw is a 'Station'.

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.

A screenshot of a software dialog box titled "Destacking parameters". It features a table with 13 rows and 5 columns. The first column lists station sizes, the second column is labeled "Value", and the third column contains letters (A, M, S). A "Range" input field at the top shows "0-9999.9, 0-9999.9". On the right side, there are buttons for "Print", "Cancel", "Help", and "OK".

| | 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 | Type | Pallet/Baseboard/Runners | | | | | | Part stack | | | | | |
|------------------|------|--------------------------|------|--------|--------|--------|---------|------------|--------|---------|---------|--------|-----|
| | | 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.

The screenshot shows the 'Review runs' software interface. The main area is titled 'Destacking pictures' and displays four 2x2 grid layouts for different parts. Each layout shows dimensions and quantities. The 'Small list for batch' section provides a summary of the parts and their quantities.

| Part | Quantity | Part | Quantity |
|-------------------------|-------------------------|-------------|--------------|
| Part:1.1 | Quantity:17 | Part:2.2 | Quantity:9 |
| Stacks:1 | Patterns:1-2 | Stacks:1 | Patterns:5 |
| Baseboard:1 440.2x757.8 | Baseboard:6 718x912.8 | | |
| Style:BEN02 | Quantity:2 | Style:BEN02 | Quantity:2 |
| Part:4.4 | Quantity:38 | Part:9.9 | Quantity:31 |
| Stacks:1 | Patterns:2-3 | Stacks:1 | Patterns:6-7 |
| Baseboard:4 244.6x917.2 | Baseboard:7 743.6x915.6 | | |
| Style:BEN02 | Quantity:2 | Style:BEN02 | Quantity:2 |

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.

| Review runs | | | | | | | | | | | |
|---|-----------|----------|---------|----------------------|--------------------|----------|---------|---------|------------------|------|------|
| File Edit View Settings Summaries Stock Help | | | | | | | | | | | |
| 00115/DS2 batch test/DS2 batch test/DSMQO-X/single/SQ | | | | | | | | | | | |
| Station summary | | | | Small list for batch | | | | | | | |
| Bsb No | Length mm | Width mm | Bsb Qty | Part No | Part / Description | Part Qty | Part Ln | Part Wd | Part Orientation | Part | Part |
| <u>Station number 1</u> | | | | | | | | | | | |
| 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 | | | | | |
| <u>Station number 2</u> | | | | | | | | | | | |
| 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 | | | | | |
| <u>Station number 3</u> | | | | | | | | | | | |
| Bsb 3 | 653.0 | 1211.8 | 2 | 25. | 25 | 37 | 2 | 2 | ! | 10 | |
| | | | 2 | | | 37 | | | | | |
| <u>Station number 4</u> | | | | | | | | | | | |
| Bsb 4 | 244.6 | 917.2 | 2 | 4. | 4 | 38 | 2 | 2 | ! | 10 | |
| | | | 2 | | | 38 | | | | | |
| <u>Station number 5 Manual</u> | | | | | | | | | | | |
| 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).

Part list - BSR50

File Edit View Optimise Help

Title AUTOMATIC DESTACKING Opt DESTACK Saw SINGLE

| | Description | Material | Length | Width | Quantity | Over | Under | Grain | Edge | Destacking Style | Destacking Mode | Ir ^ |
|--------|-------------------|---------------|--------|-------|----------|------|-------|-------|------|------------------|-----------------|------|
| 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 | |

BSR50 NUM

Destacking with Baseboards

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

Review runs

File Edit View Settings Summaries Stock Help

Batch reports
Summaries
Advanced

Offcut summary
Distribution summary
Edging summary
Machine times
Saw loading summary
Destacking summary
Station summary
Destacking pictures
Patterns
Machining

Destacking pictures

AUTOMATIC DESTACKING
00002/BSR50/BSR50/?DESTACK/?SINGLE/M1

| | | | |
|---|---|---|--|
| <p>Part:1.BU05HK-BACK Stacks:1 Stn:2 Baseboard:948x1420 Style:BASE_1</p> <p>474 X 710 474 X 710</p> <p>474 X 710 474 X 710</p> | <p>Quantity:20 Part:2.BU05MB-BASE Patterns:3-4 Stacks:1 Stn:1 Baseboard:948x1170 Style:BASE_1</p> <p>BU05MB-BASE BU05MB-BASE 474 X 585 474 X 585</p> <p>BU05MB-BASE BU05MB-BASE 474 X 585 474 X 585</p> | <p>Quantity:20 Part:3.BU05ME/LEFT Patterns:10 Stacks:1 Stn:1 Baseboard:1170x1740 Style:BASE_1</p> <p>585 X 870 585 X 870</p> <p>585 X 870 585 X 870</p> | <p>Quantity:45 Part:4.BU05ME/RIGHT Stacks:1 Stn:2 Baseboard:1170x1740 Style:BASE_1</p> <p>585 X 870 585 X 870</p> <p>585 X 870 585 X 870</p> |
| <p>Quantity:45 Part:5.BU05MP-PLINTH Patterns:10-11 Stacks:1 Stn:2 Baseboard:1000x300 Style:BASE_1</p> <p>BU05MP-PLINTH BU05MP-PLINTH 500 X 150 500 X 150</p> <p>BU05MP-PLINTH BU05MP-PLINTH 500 X 150 500 X 150</p> | <p>Quantity:20 Part:6.BU05MR-RAIL Patterns:7 Stacks:1 Stn:2 Baseboard:948x150 Style:BASE_1</p> <p>BU05MR-RAIL BU05MR-RAIL BU05MR-RAIL BU05MR-RAIL</p> | <p>Quantity:40</p> | <p>Quantity:1</p> |

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 | Ir ^ |
|--------|-------------|--------------------|--------|--------|----------|------|-------|-------|------|------------------|-----------------|------|
| 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 requires the optimising module: PO

| | 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 | • |