Machining interface – Datasheet MI

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 CNC machining centres.

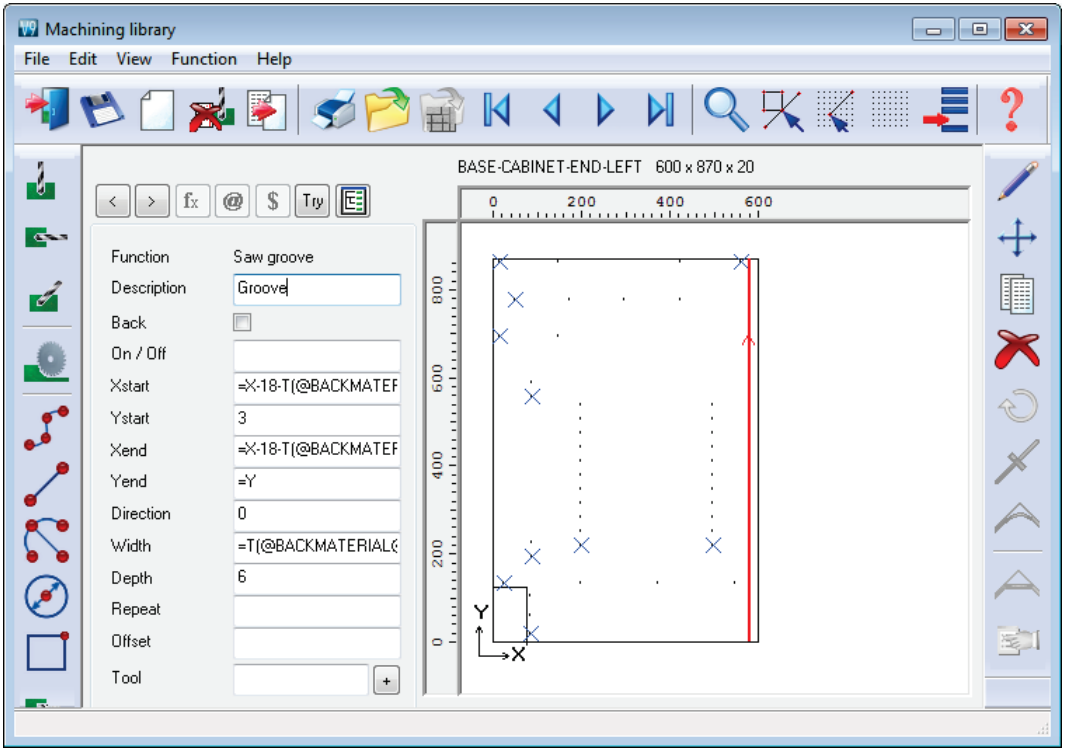
Most machining centre formats are supported including DXF, Weeke WoodWop, and other proprietary formats.

The MI interface requires one of the Optimiser modules LO, SO or PO or the Nesting optimisers (NE) for 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.



The pane at the left shows 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.

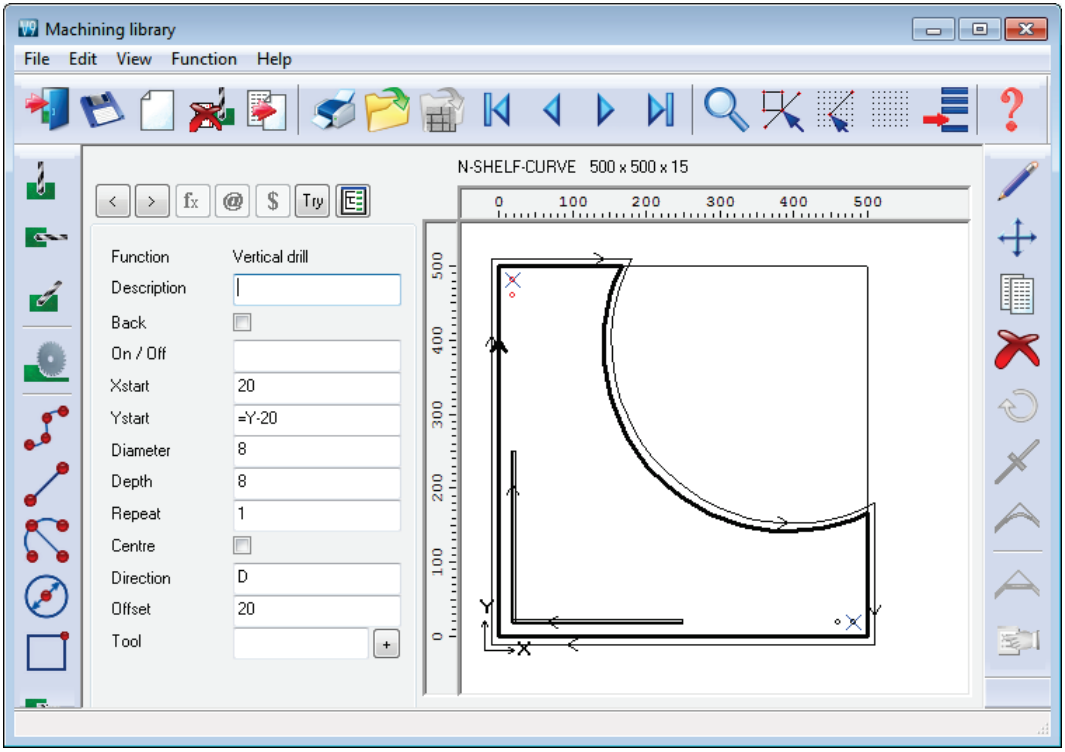
Drawings are stored in the Machining library

External drawings – where the drawings are external files such as DXF or Weeke MPR 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.



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.

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

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

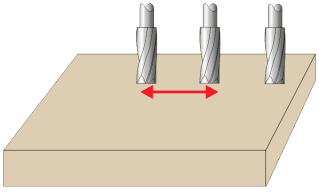
The machining centre parameters set up the general features for the machining drawings/instructions such as the Drawing origin, and specific features for proprietary machines such as the ‘Park mode’ for Weeke/WoodWop.

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. A wide range of transfer formats are supported:-

```
Weeke/WoodWop V4/V5 (MPR)
Weeke/WoodWop V2.5 (MPR)
2D DXF non layered
2D DXF layered
3D DXF layered
Biesse RoverCad (CID)
Morbidelli Aspan V3.2 (ASC)
Morbidelli Aspan V4.0 (ASC)
Busellato Autolink (DXF)
ASCII PTX
MDB  PTX
```

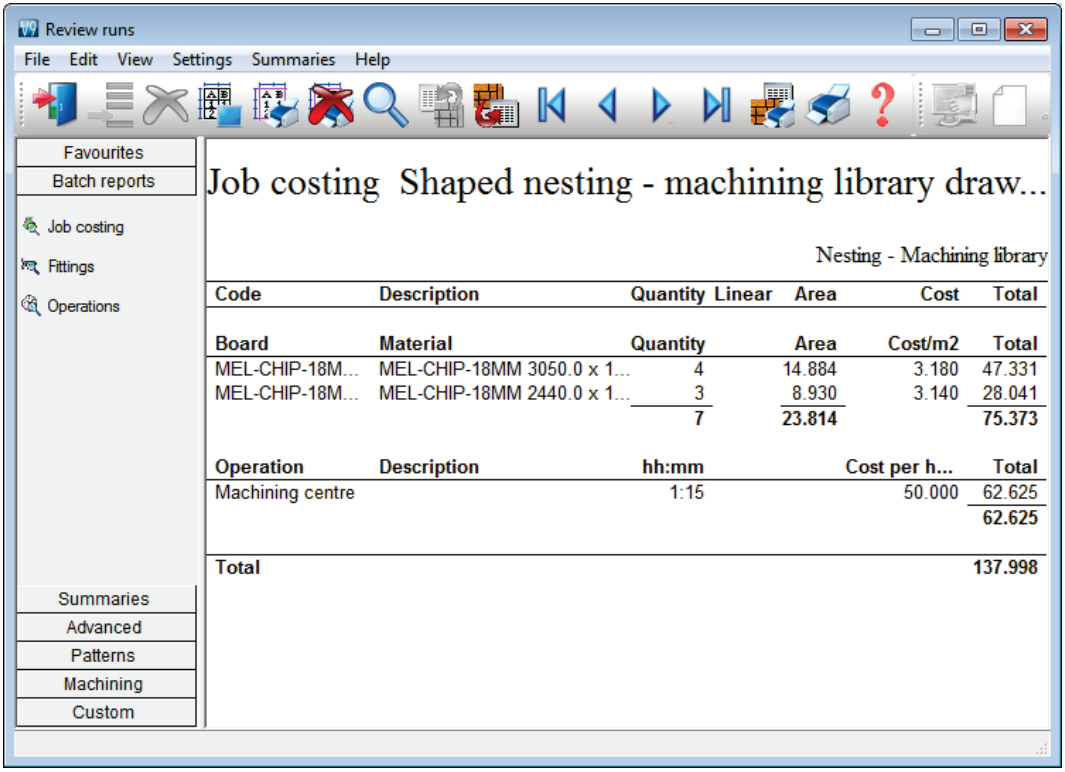
The machining centre transfer parameters also include a Tooling replacement table, so that tooling instructions can be translated to a specific format for a machine. This allows for a single set of drawings which can then be interpreted for different CNC machines.

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



Machining summary and costs

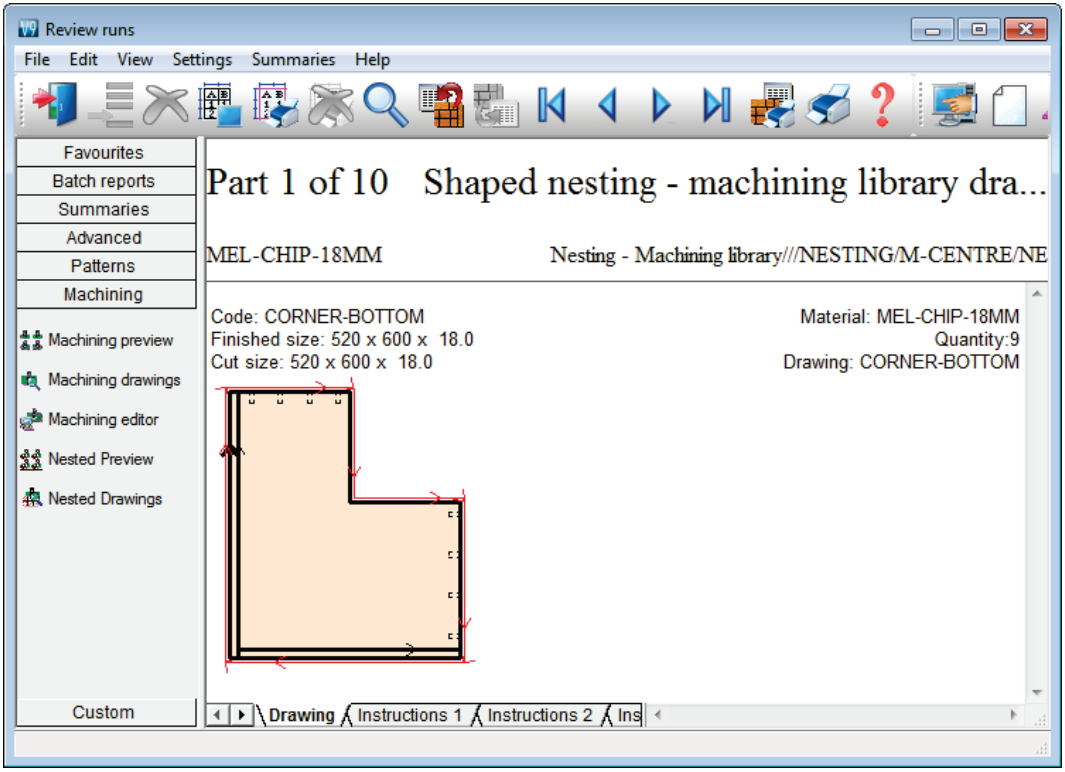
The summary reports in Review runs, for example, Job costing, include the details for machining where these are relevant.



There are several specific reports and options for Machining under the 'Machining' tab..

Machining drawing

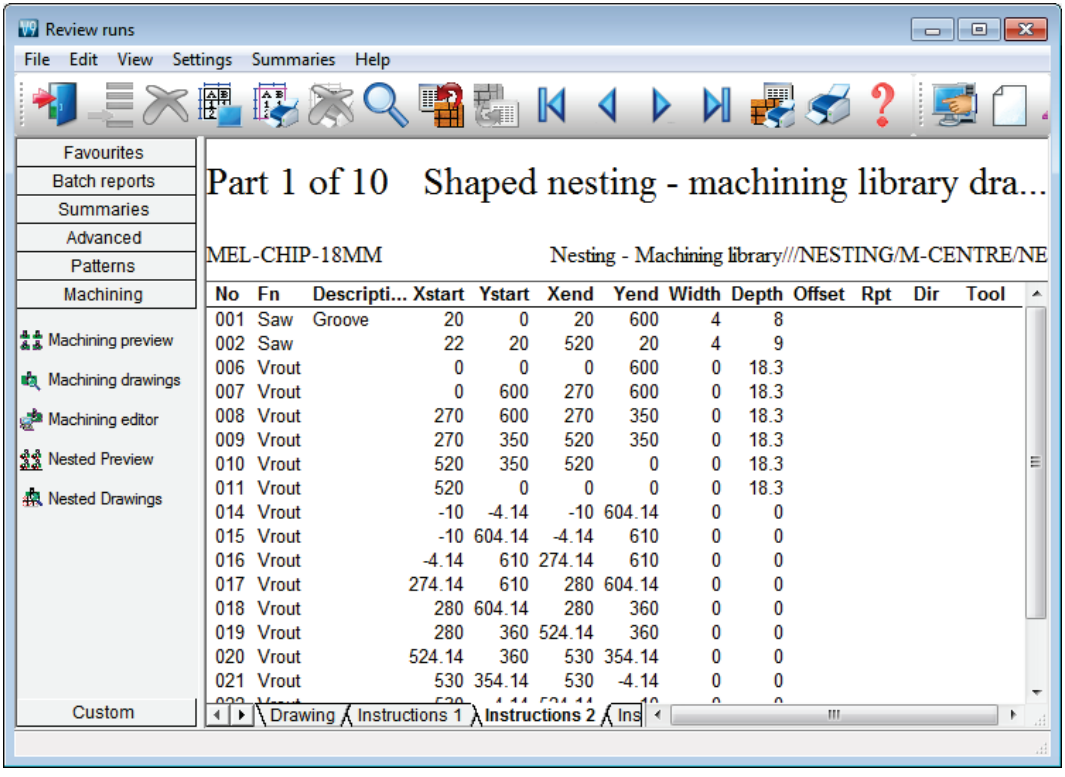
The machining drawing shows each drawing fully resolved.



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

Machining instructions

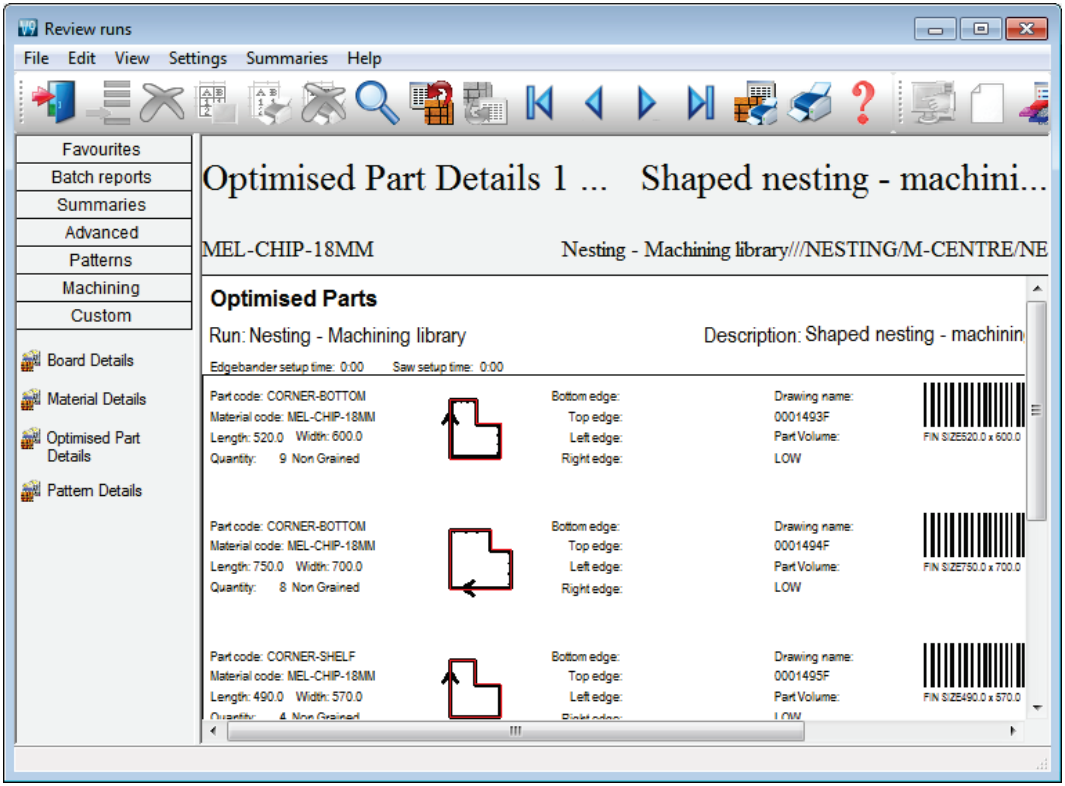
At the foot of each machining drawing are a set of tabs showing the full machining instructions.



No	Fn	Descripti...	Xstart	Ystart	Xend	Yend	Width	Depth	Offset	Rpt	Dir	Tool
001	Saw	Groove	20	0	20	600	4	8				
002	Saw		22	20	520	20	4	9				
006	Vrout		0	0	0	600	0	18.3				
007	Vrout		0	600	270	600	0	18.3				
008	Vrout		270	600	270	350	0	18.3				
009	Vrout		270	350	520	350	0	18.3				
010	Vrout		520	350	520	0	0	18.3				
011	Vrout		520	0	0	0	0	18.3				
014	Vrout		-10	-4.14	-10	604.14	0	0				
015	Vrout		-10	604.14	-4.14	610	0	0				
016	Vrout		-4.14	610	274.14	610	0	0				
017	Vrout		274.14	610	280	604.14	0	0				
018	Vrout		280	604.14	280	360	0	0				
019	Vrout		280	360	524.14	360	0	0				
020	Vrout		524.14	360	530	354.14	0	0				
021	Vrout		530	354.14	530	-4.14	0	0				

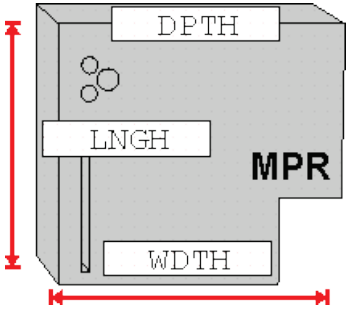
At Review runs the instructions are resolved to absolute values.

With the Parts & Labels module route cards or labels for each machined parts can be printed at the office.



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.



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

- Machining Interface requires one of the Optimising modules: LO, SO, PO or the Nesting Optimiser NE.

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