

Introduction to Morbidelli N100

If you are unsure of anything, please don't hesitate to ask UQ Innovate Staff
If something is untidy, wrong or broken **Report IT!**

Start Up Procedure

Starting at back of machine. Identify Wall Isolation for Air and Power and how they function.
Also note extraction control panel this needs to be green light "fan" on for all material milling and drilling operations.



Identify Air shutoff valve on the machine it needs to be shut off at end of use so that compressed air doesn't bleed through an un-energised solenoid when machine is off. Push down on the aluminium plunger to open the valve.

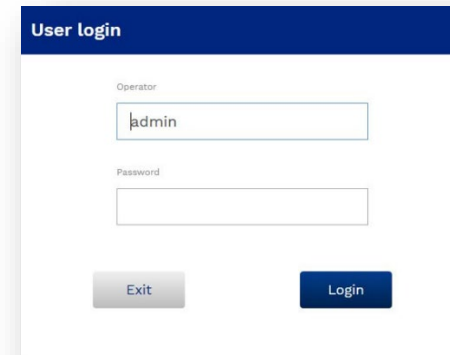
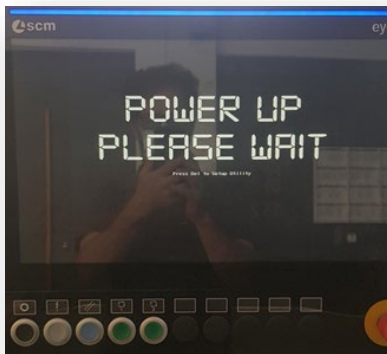


Identify machine isolator and switch on by rotating clockwise



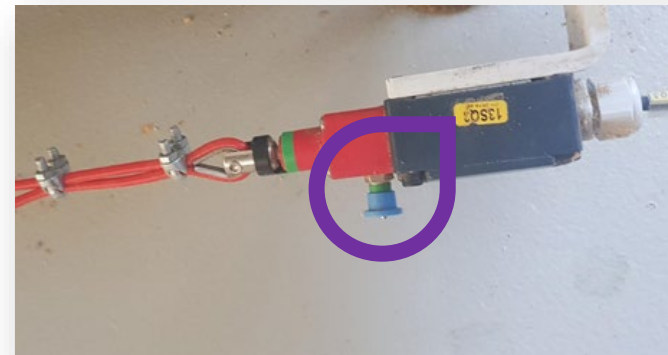
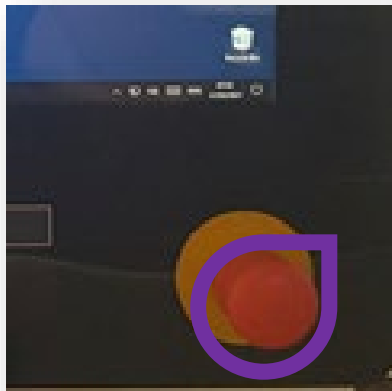
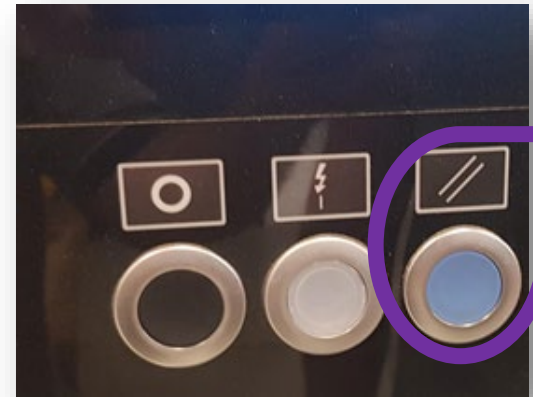
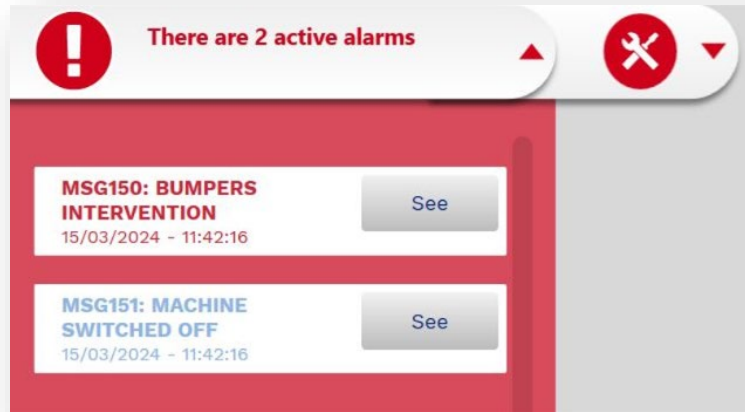
Once machine has switched on open “Maestro Active” and log in, details are.

Username: Admin Password: “nil”



CREATE CHANGE

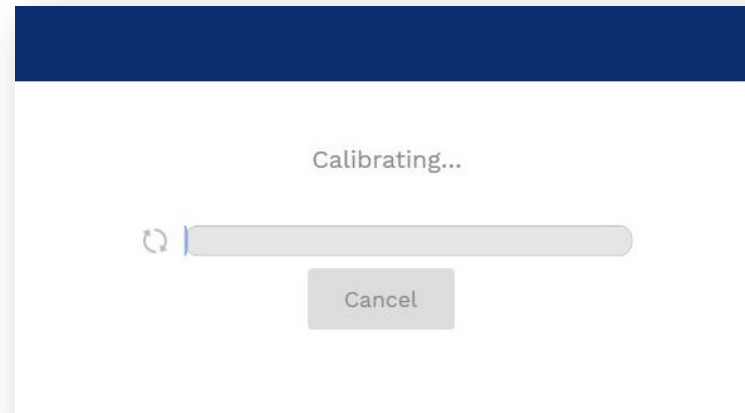
Once Maestro opens the “alarms” will need to be cleared using the control panel reset button and the various “emergency stops”.



Homing / Axis Calibration, Click the calibration Icon



Press Manual “Cycle Start” Button. At this stage it is good to understand how the “bumpers” work and how the machine needs a clear and uninterrupted path from collisions.



CREATE CHANGE

Depending on the machines location when it was shut down this time can vary between 2-5 minutes. Once the machine is calibrated it should have the Thumbs up.

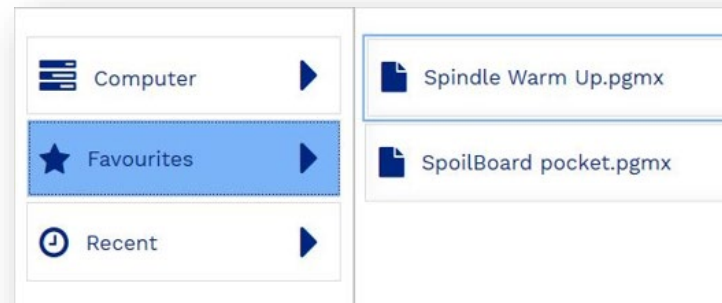
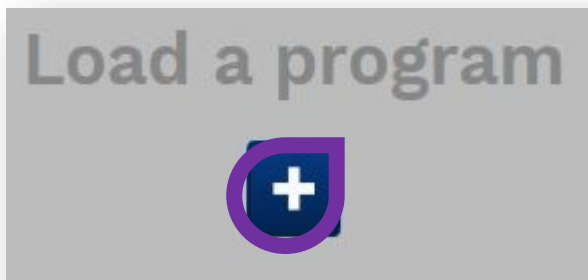


Spindle Warm Up

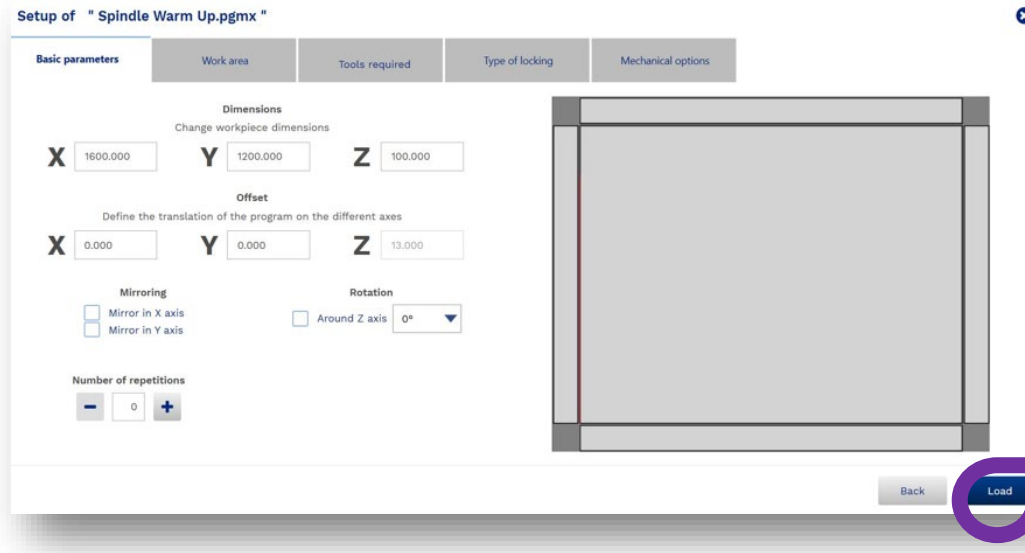
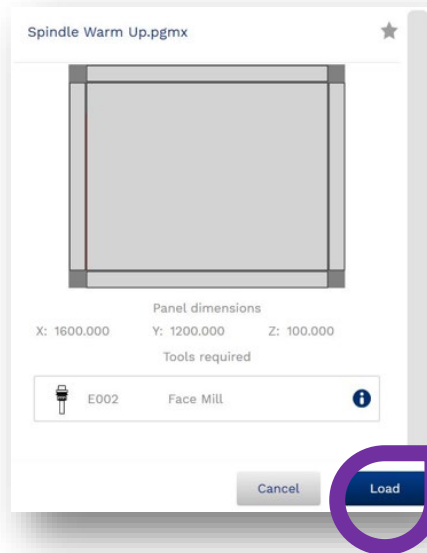
It is important that the Spindle warm up is run every time the machine is started. On the toolbar locate the “playlist” button for loading programs.



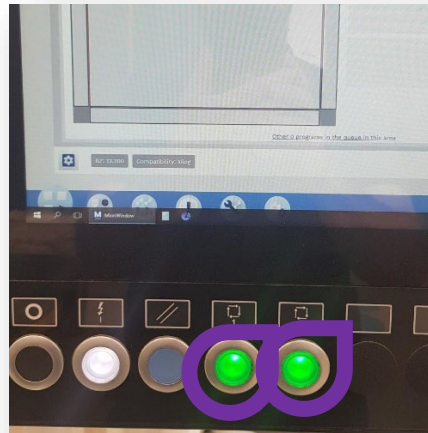
Now click on “load a program” and select “Spindle Warm Up.pgmx” from the favourites list.



Now Click the "Load" button on the next 2 pages.

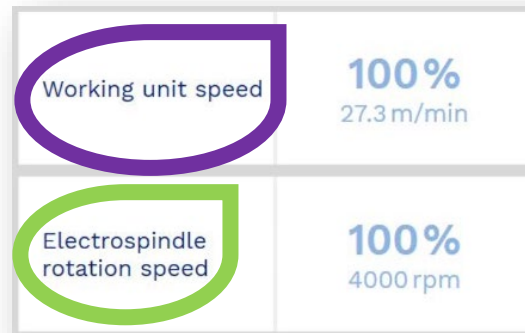
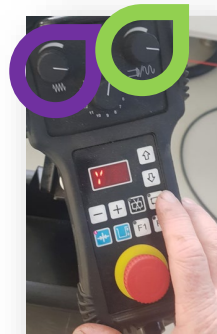


The automatic cycle buttons should now be flashing green press either one to commence the warm up process.

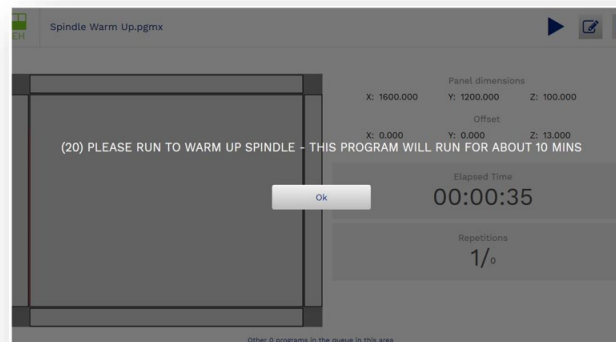


CREATE CHANGE

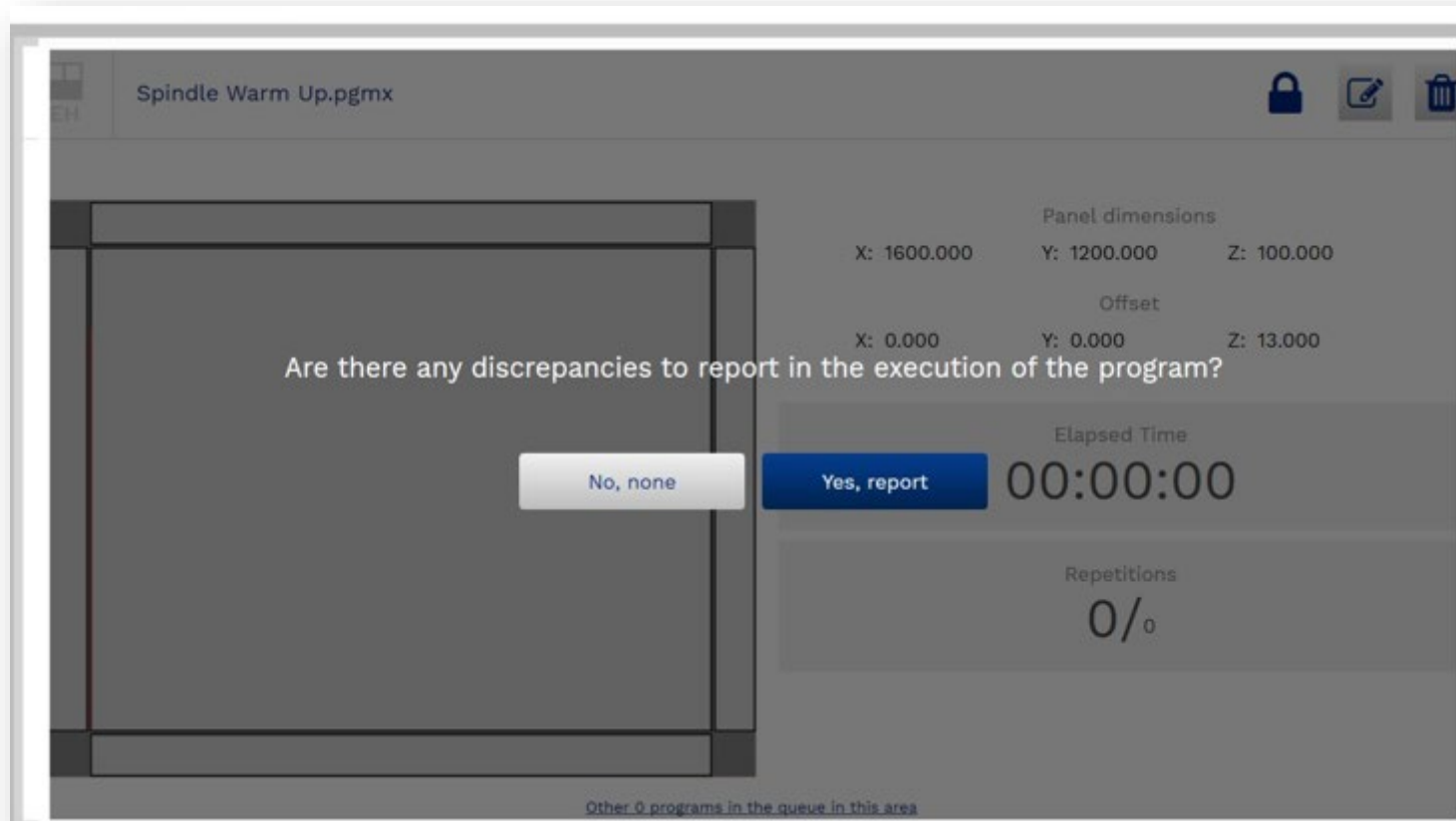
Make sure the motion control potentiometers are set to 100% or nothing will happen. The left potentiometer controls rapid movements and the right potentiometer is for milling feed speed.



This program takes approximately 10 minutes to complete, now is a good time to check your program and get materials in order.

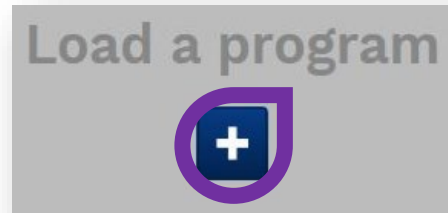


Once the program is finished running you will have a dialog box asking you to give feedback just click “no”.

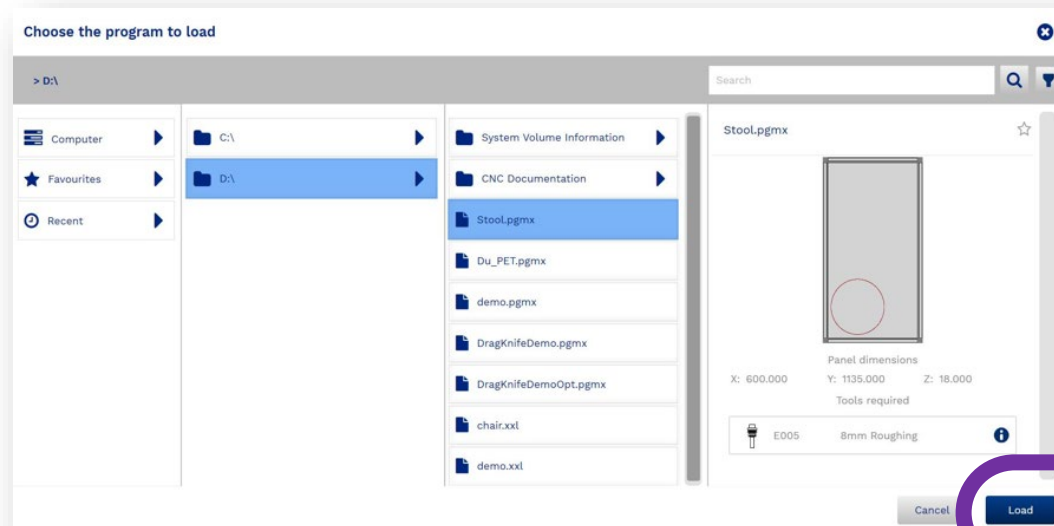


Loading a Program to Run from D:\

Click Load Program.

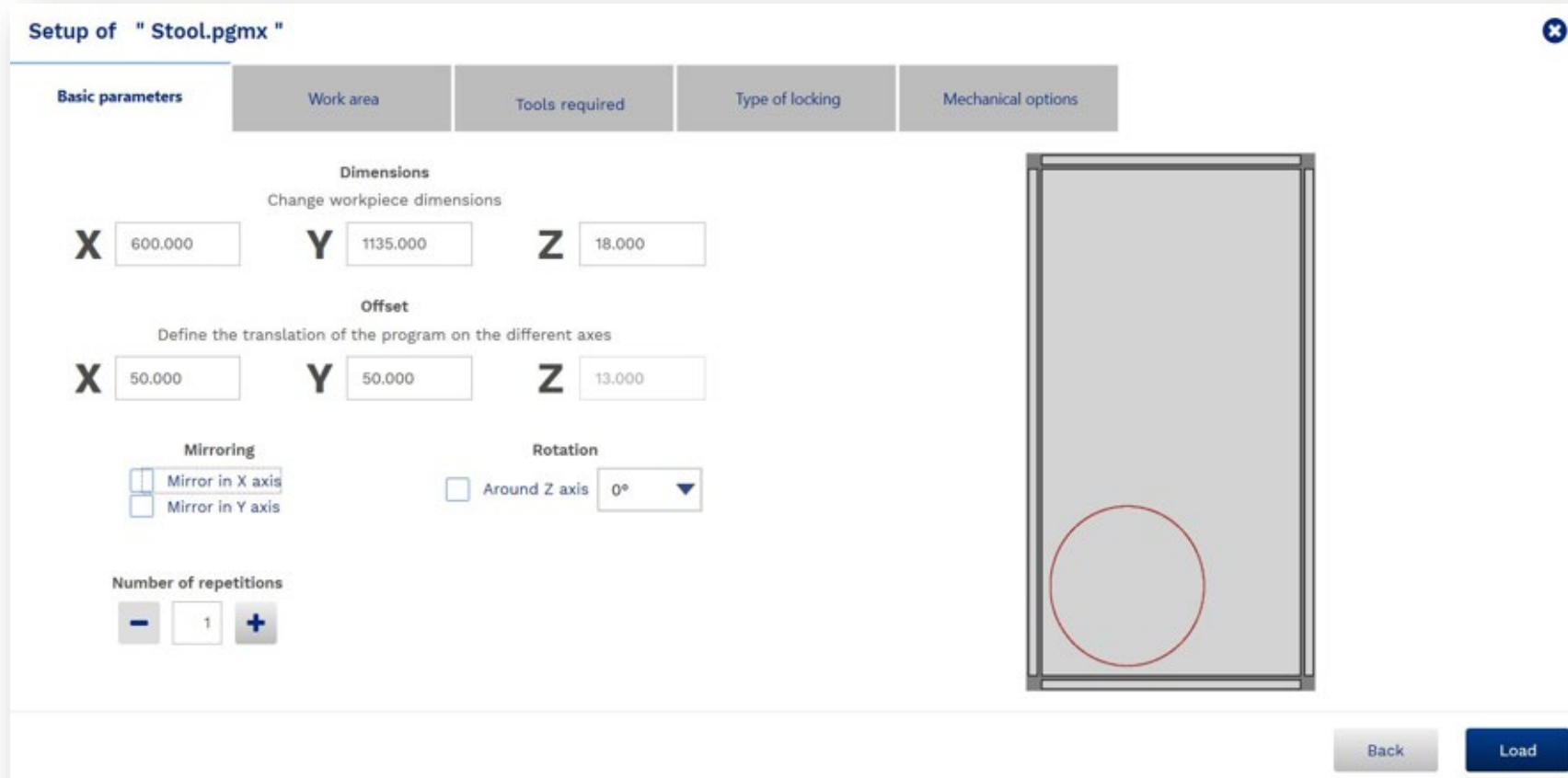


Choose File Location and click Load.



CREATE CHANGE

“Basic Parameters” is where you can set number of repetitions and also control BX and BY offsets. There there is also the ability to mirror and rotate toolpathing from here. Mostly repetitions is the only thing needed.



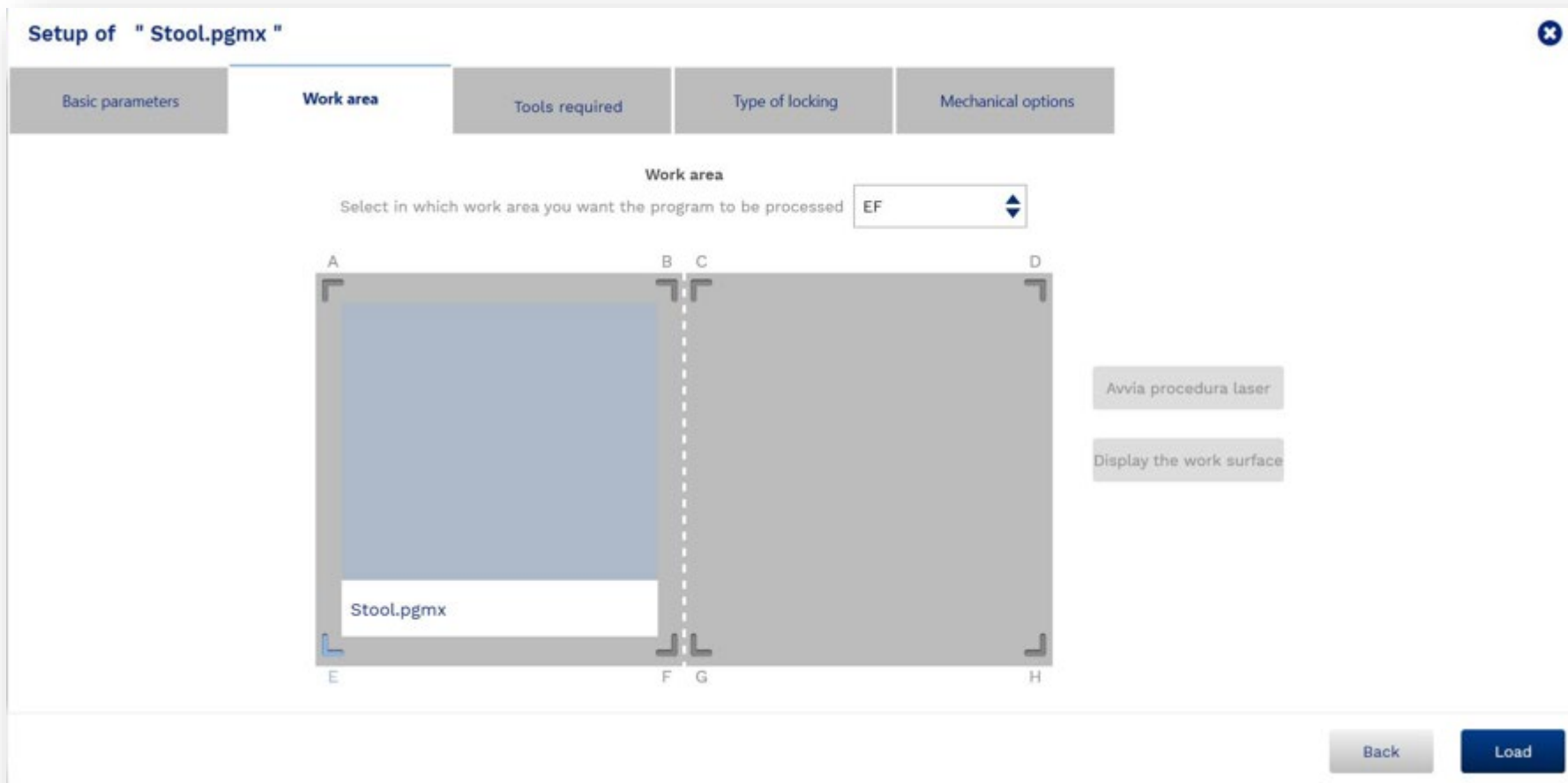
The screenshot displays the 'Setup of " Stool.pgmx "' interface. It features a top navigation bar with tabs for 'Basic parameters', 'Work area', 'Tools required', 'Type of locking', and 'Mechanical options'. The 'Basic parameters' tab is active, showing the following settings:

- Dimensions:** X: 600.000, Y: 1135.000, Z: 18.000. Subtext: 'Change workpiece dimensions'.
- Offset:** X: 50.000, Y: 50.000, Z: 13.000. Subtext: 'Define the translation of the program on the different axes'.
- Mirroring:** 'Mirror in X axis' and 'Mirror in Y axis' are both unchecked.
- Rotation:** 'Around Z axis' is checked, with a dropdown menu set to 0°.
- Number of repetitions:** A numeric input field set to 1, with minus and plus buttons.

On the right side, there is a 3D visualization of a rectangular workpiece with a red circle at the bottom center. At the bottom right of the interface are 'Back' and 'Load' buttons.

CREATE CHANGE

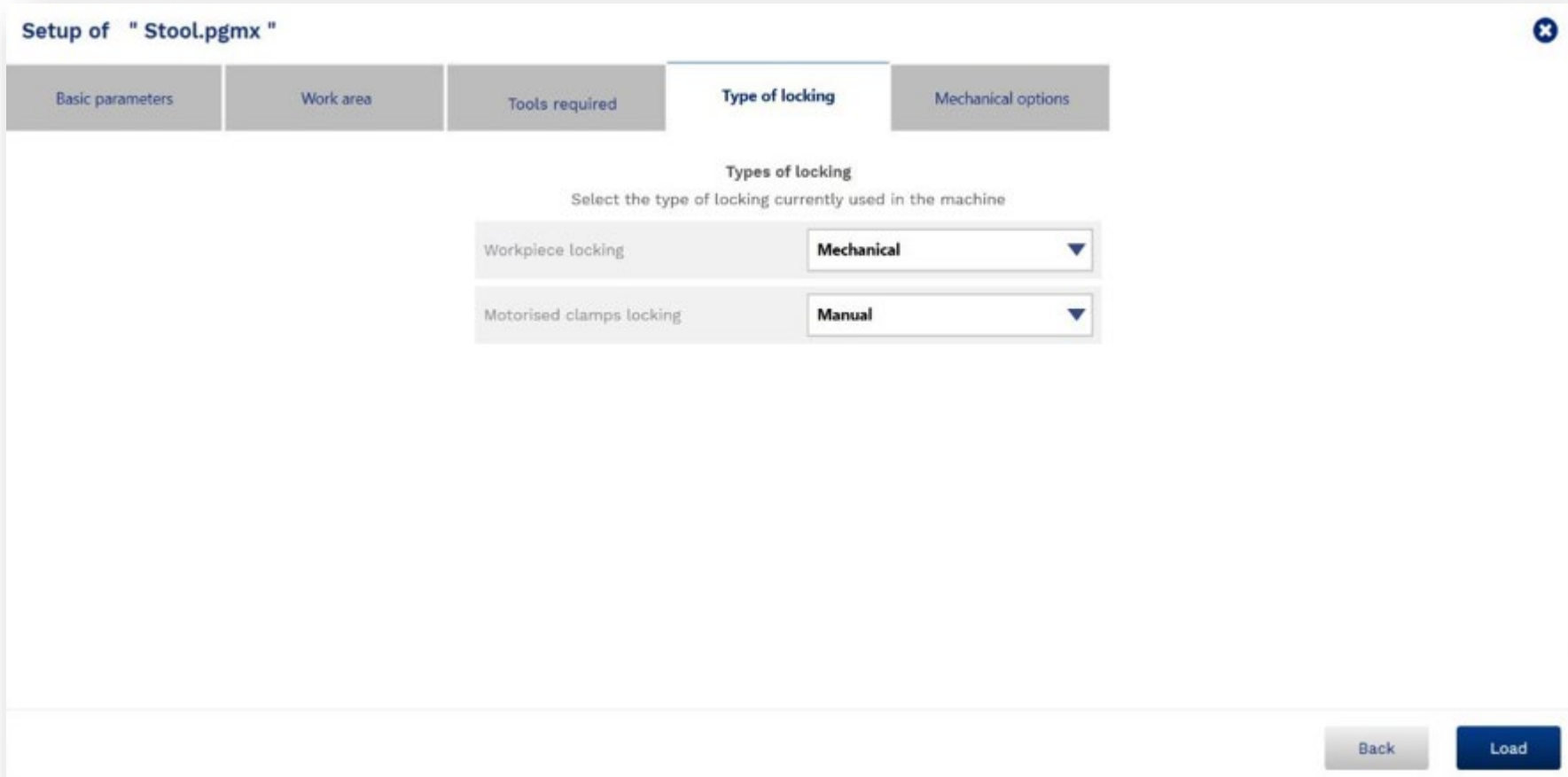
“Work Area” is where you select what location you wish to run a job. Use either EF for a half sheet or EH for a full sheet.



The screenshot displays the 'Setup of " Stool.pgmx "' interface. It features a top navigation bar with tabs: 'Basic parameters', 'Work area' (selected), 'Tools required', 'Type of locking', and 'Mechanical options'. Below the tabs, the 'Work area' section contains a dropdown menu labeled 'Select in which work area you want the program to be processed' with 'EF' selected. A diagram below shows a rectangular work area divided by a vertical dashed line between points B and C. The left side is labeled A-E and the right side is labeled D-H. A blue shaded area labeled 'Stool.pgmx' is positioned on the left side. To the right of the diagram are two buttons: 'Avvia procedura laser' and 'Display the work surface'. At the bottom right, there are 'Back' and 'Load' buttons.

CREATE CHANGE

“Type of Locking” is where we select workpiece locking and switch it from default Vacuum fixturing to Mechanical fixturing. We select Mechanical fixturing as the vacuum request needs to be overridden but we need to remember to put on the vacuum pump.



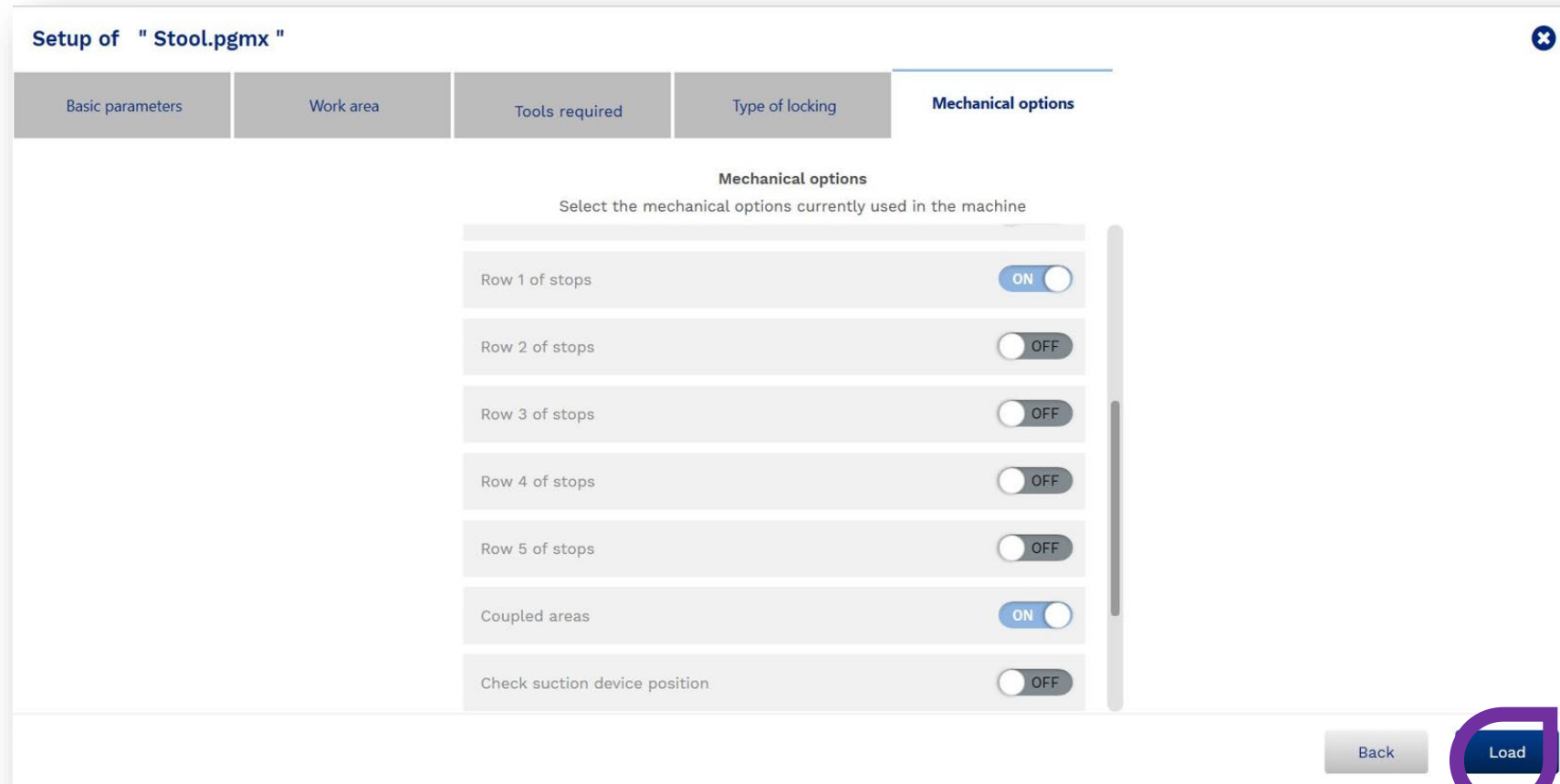
The screenshot shows a software interface titled "Setup of " Stool.pgm ". The interface has a top navigation bar with five tabs: "Basic parameters", "Work area", "Tools required", "Type of locking" (which is the active tab), and "Mechanical options". Below the tabs, the "Type of locking" section is displayed. It contains the heading "Types of locking" and the instruction "Select the type of locking currently used in the machine". There are two rows of configuration options, each with a label and a dropdown menu:

| Label | Selected Value |
|--------------------------|----------------|
| Workpiece locking | Mechanical |
| Motorised clamps locking | Manual |

At the bottom right of the interface, there are two buttons: "Back" and "Load".

CREATE CHANGE

On "Mechanical Options" you should only need to check that "Coupled Areas" is on otherwise you will need to press the table activation button at each end of the machine. You may now press "Load".



Setup of " Stool.pgmx "

Basic parameters Work area Tools required Type of locking **Mechanical options**

Mechanical options
Select the mechanical options currently used in the machine

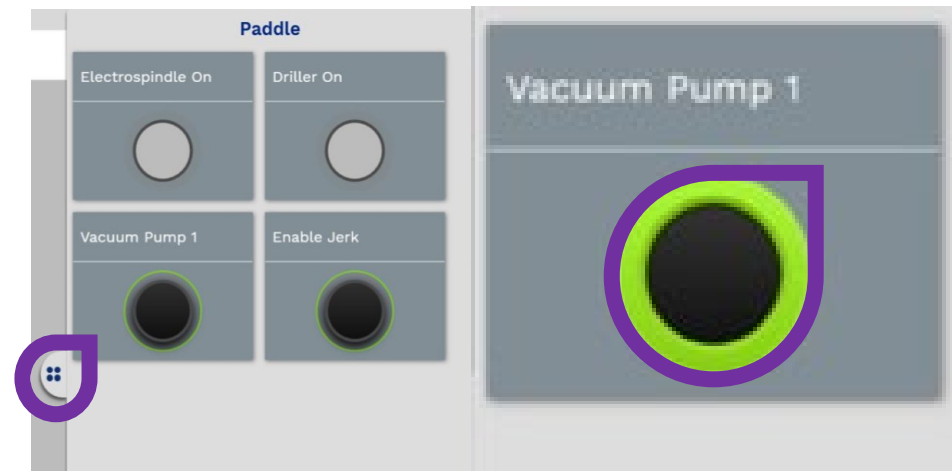
| | |
|-------------------------------|--|
| Row 1 of stops | <input checked="" type="checkbox"/> ON |
| Row 2 of stops | <input type="checkbox"/> OFF |
| Row 3 of stops | <input type="checkbox"/> OFF |
| Row 4 of stops | <input type="checkbox"/> OFF |
| Row 5 of stops | <input type="checkbox"/> OFF |
| Coupled areas | <input checked="" type="checkbox"/> ON |
| Check suction device position | <input type="checkbox"/> OFF |

Back **Load**

CREATE CHANGE

You will still need to put the Vacuum pump on to fixture most jobs. The hidden buttons are located with a tab to the right of screen and is called “Paddle”.

“Then click on Vacuum Pump 1” you should notice it is on by the unmistakable noise it makes. Now is a good time to put on hearing protection and ensure that the extraction is functioning correctly.

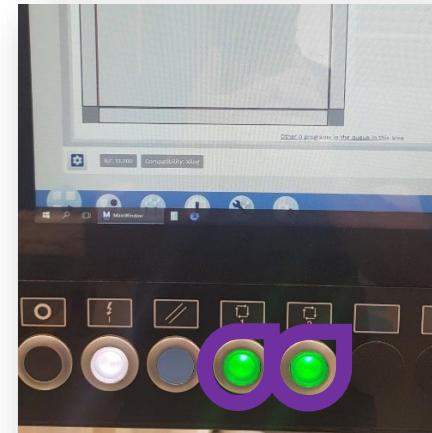


CREATE CHANGE

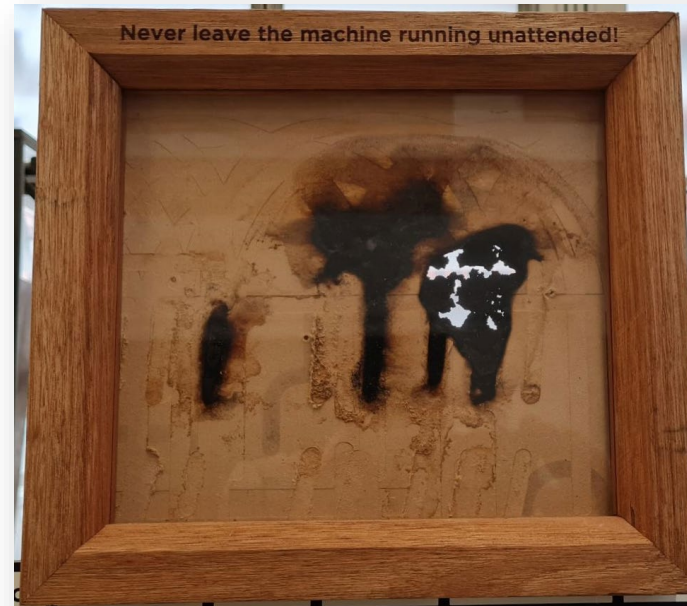
Before placing material on the machine activate alignment pins and disengage table vacuum by pressing the table zone activation button.

Once you are satisfied the material is located against the pins you can press the activation button to vacuum fixture your job.

Ensure material is stable in it's fixturing before pressing cycle start.

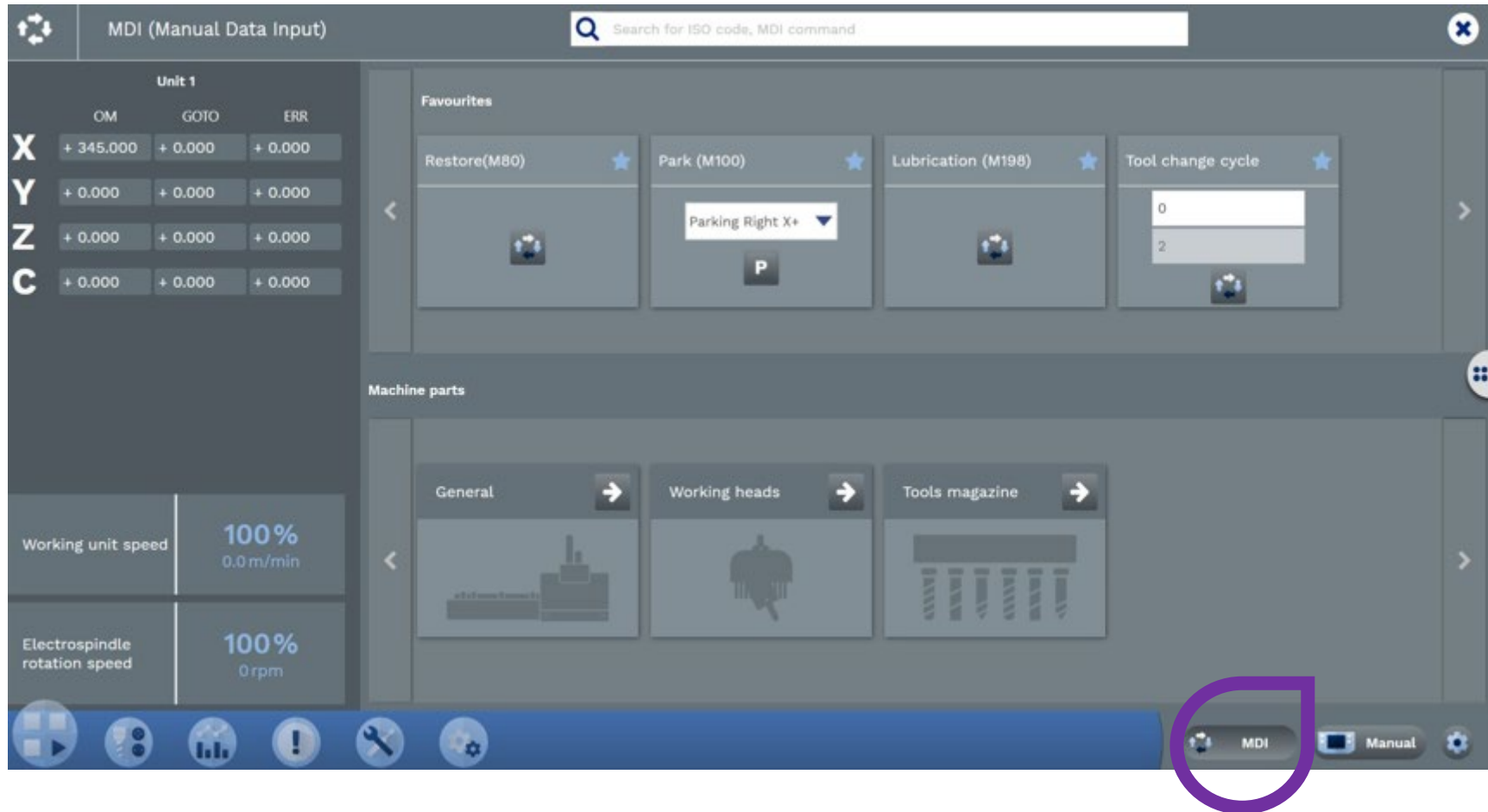


When running programs on the machine you must always be alert and ready to respond.
Know the controls on the hand control and how to use them. Keep it within easy reach.
Never leave the machine running unattended. Watch, look, listen and even smell for trouble.



Manual Data Input Procedures

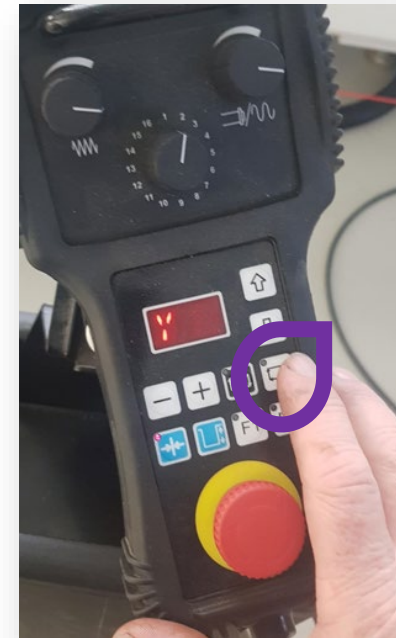
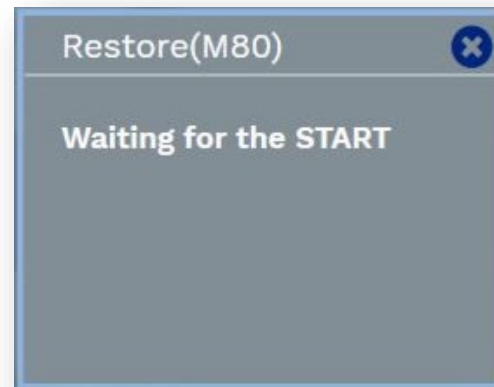
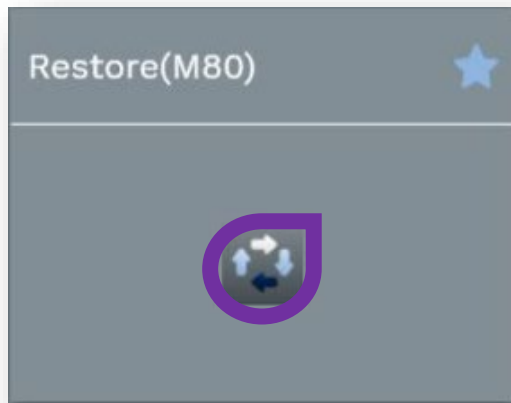
There are several useful functions available from MDI to access click the “MDI” button on the toolbar.



Spindle Retract (M80)

It is important to retract the spindle before restarting a program especially if the tool is in contact with material failure to retract the tool before restart will result in damage.

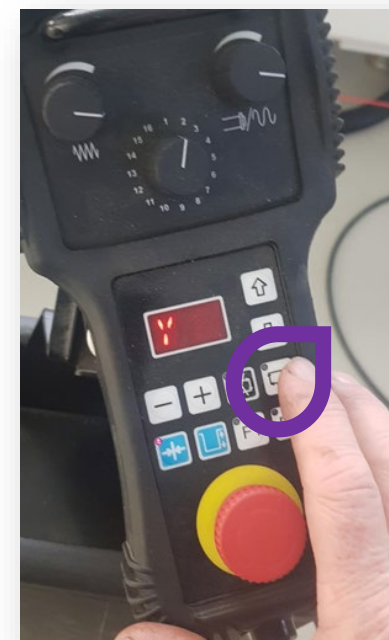
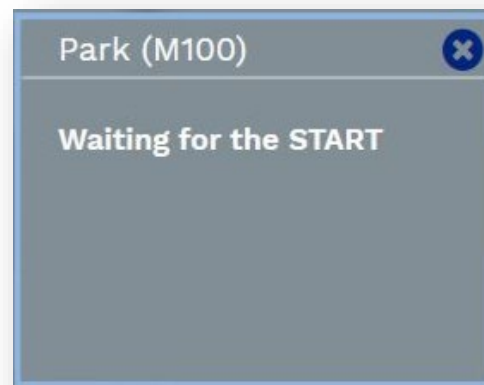
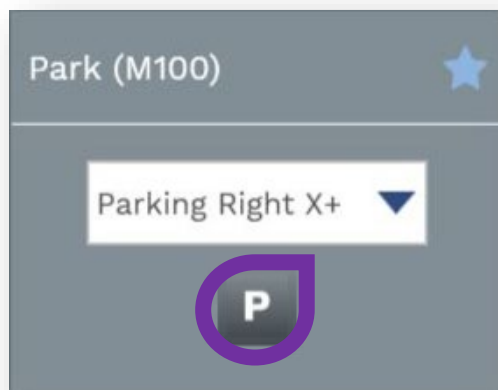
Click on Restore (M80) then press the cycle start button on the hand control.



Park (M100)

Sometimes we need to move the machine gantry to either the left or right for loading of materials, cleaning the machine or access to the tool store.

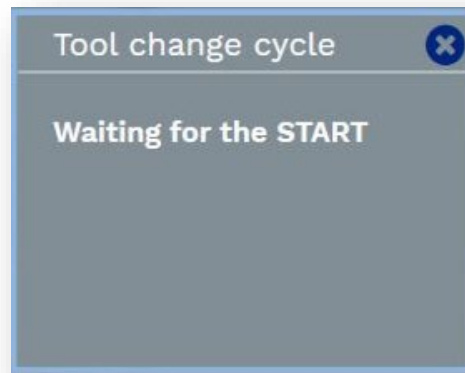
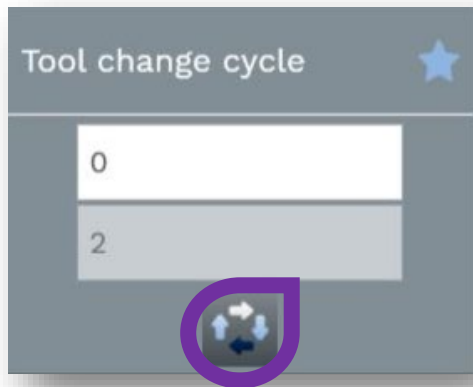
Click Park button & use the drop box to select (Parking Right X+) or (Parking Left X-) then press the cycle start button on the hand control.



Tool Change Cycle

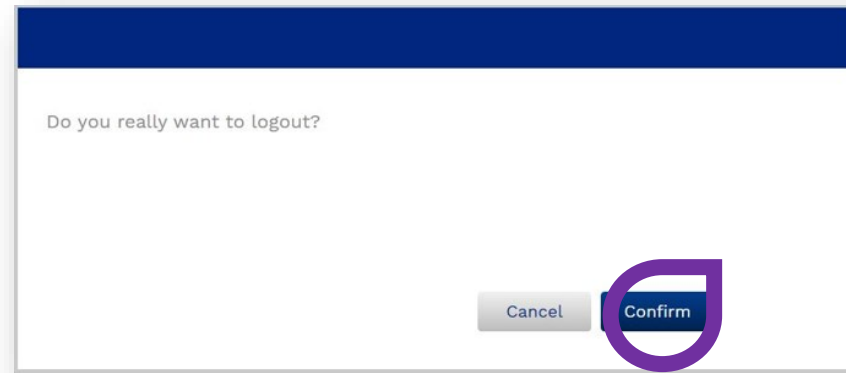
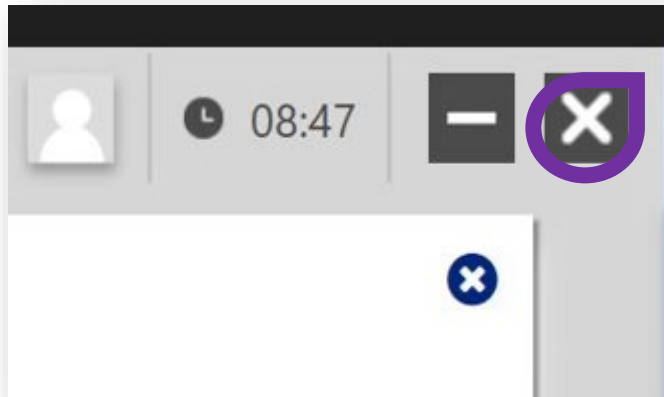
At Times we need to load and unload tools from the machines spindle this is especially important before machine shut down. If the machine is left for long periods of time with a loaded tool it can become stuck due to corrosion.

Use the top dialogue box to select the tool you want to load (select 0 if you wish to unload) the bottom box shows which tool is loaded

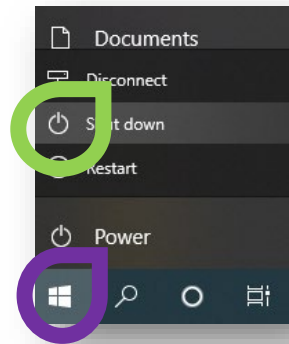


Shutdown Procedure

Before shutting down the machine it is important that we have an empty spindle and all SCM software is closed on the desktop.
Make sure Maestro active and Maestro are closed or there is a risk of file corruption.



Shut down the computer from the windows button as you would with any other PC



Once the screen has gone blank you can switch off the power at the machine isolator. Rotate it counterclockwise



Finally shut the air valve by pulling the plunger up. If you have been using the extraction switch it off at the control panel but leave the wall isolation for air and power in the on position.



Please ensure that the machine is clean and tidy for the next user and that the coversheet is put back on the machine.
If a damage occurs, please, report it immediately.