G.L.A.S.S.

Technical Description

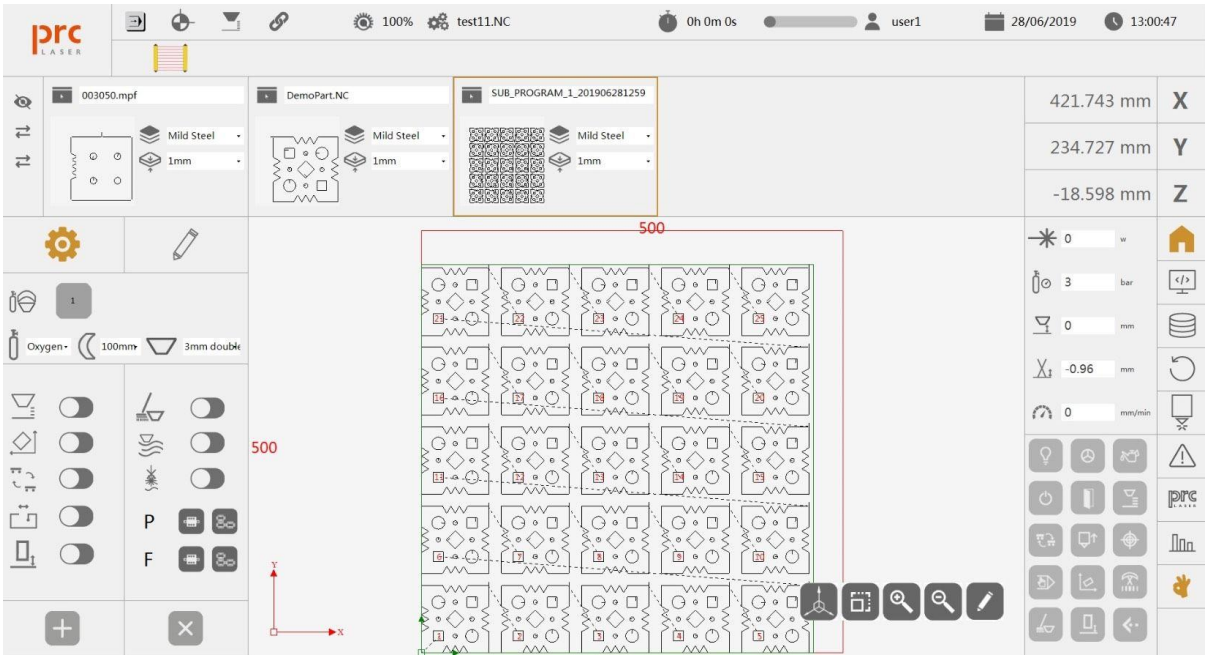
1. PRC LASER G.L.A.S.S.

1.1. INTRODUCTION

PRC Laser G.L.A.S.S. stands for “Graphical Laser Application and System Software”, it is the software platform that provides Laser machines and systems with both advanced and easy-to-use user interfaces. PRC Laser G.L.A.S.S. works on a dedicated PC with advanced graphical card that can be connected to the company network. Remote service is possible if an internet connection is available at the customer. Fully compatible option available “G.L.A.S.S. Mobile”. A brief description about the main software components is given below.

1.2. PROGRAM SELECTOR

All available programs in the work directory can be scrolled and are visualized in the program selector. The preparation of a program does not involve more than its selection.



If needed, additional features can be activated:

- ✓ Automatic nozzle distance calibration at the start of the program
- ✓ Automatic work piece detection to locate the exact position and orientation of the workpiece

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- ✓ Activation of pre-piercing: if desired, first all piercings can be made and only afterwards the cutting of the different contours. The pre-piercing can be applied per part or for the whole nesting at once.
- ✓ Activation of foil melting: some workpiece surfaces are protected with special plastic foils. If desired, this foil can first be removed along the contours to be cut by the laser machine and only afterwards the cutting of the different contours will take place. The foil melting can be applied per part or for the whole nesting at once.

Not only can specific machine features be activated, also some operations on the actual program can be performed by the operator in G.L.A.S.S.:

- ✓ Adding additional workpieces to the nesting
- ✓ Deleting workpieces from the nesting
- ✓ Moving and/or rotating workpieces in the nesting
- ✓ Changing the order of execution for the different parts

All the above takes place by graphical manipulations only. No need to edit programs manually or new programs to be generated by the CAD/CAM system.

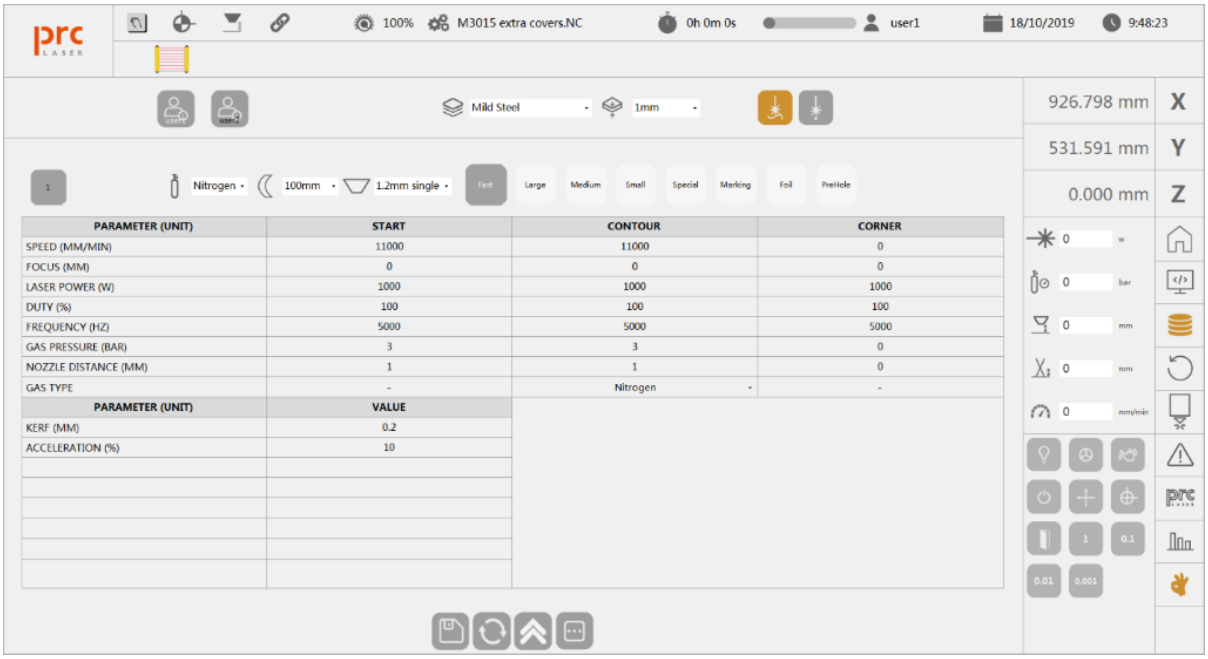
1.3. PART MANAGER

PRC Laser G.L.A.S.S. allows the operator to manipulate individual parts from the list of programs in the work directory of the machine.

- ✓ Cutting technologies can be changed for individual contours, entire parts or for the whole program
- ✓ Piercing technologies can be changed for selected piercing points
- ✓ Positioning modes of the cutting head between contours can be changed easily between head-down (the cutting head moves over the sheet without lifting), head-up (the cutting head is lifted prior to moving towards the next contour) or “frog jump” (the cutting head makes an interpolated movement in X, Y and Z-direction to jump towards the next contour)
- ✓ Simple nestings of selected parts can easily be generated directly on the machine without the need of programming on the CAD/CAM system.

1.4. DATABASE MANAGER

PRC Laser G.L.A.S.S. comes with a ready-to-use parameter database of laser cutting, welding or piercing parameters in the most common used materials and thicknesses with a pre-defined selection of the optimal laser tools (the combination of the laser optical and gas configuration for the application). The laser process itself can be controlled in detail by a wide range of process parameters that give complete control over the entire laser process in question. Both the parameters of the pre-installed database as the definition of new materials and/or laser tools can be completely managed by the operator. The database contains the complete know-how of the laser process and is under full control of the operator.



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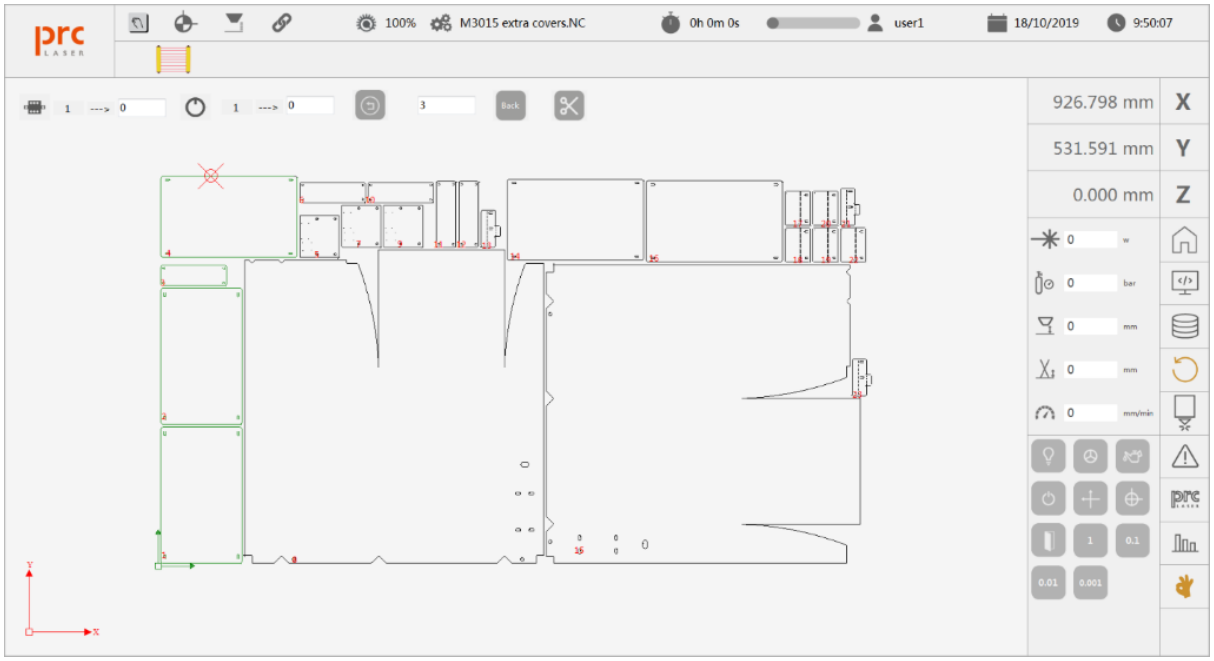
- ✓ Adaptive corner pulse and laser power modulation: optimum results in corners of parts can be obtained by adjusting the pulse characteristics and the laser power according to the momentary process speed at all times.
- ✓ Lead-in transition function: to establish a stable laser process right from the start, the machine can make a smooth transition of the laser application parameters from the very start to the point where the desired process feed-rate is reached.
- ✓ Multi-step piercing procedure: the piercing process can be performed in several steps, in which every laser process parameter can be controlled individually, allowing a complete control of the process.

1.5. RESTART MANAGER

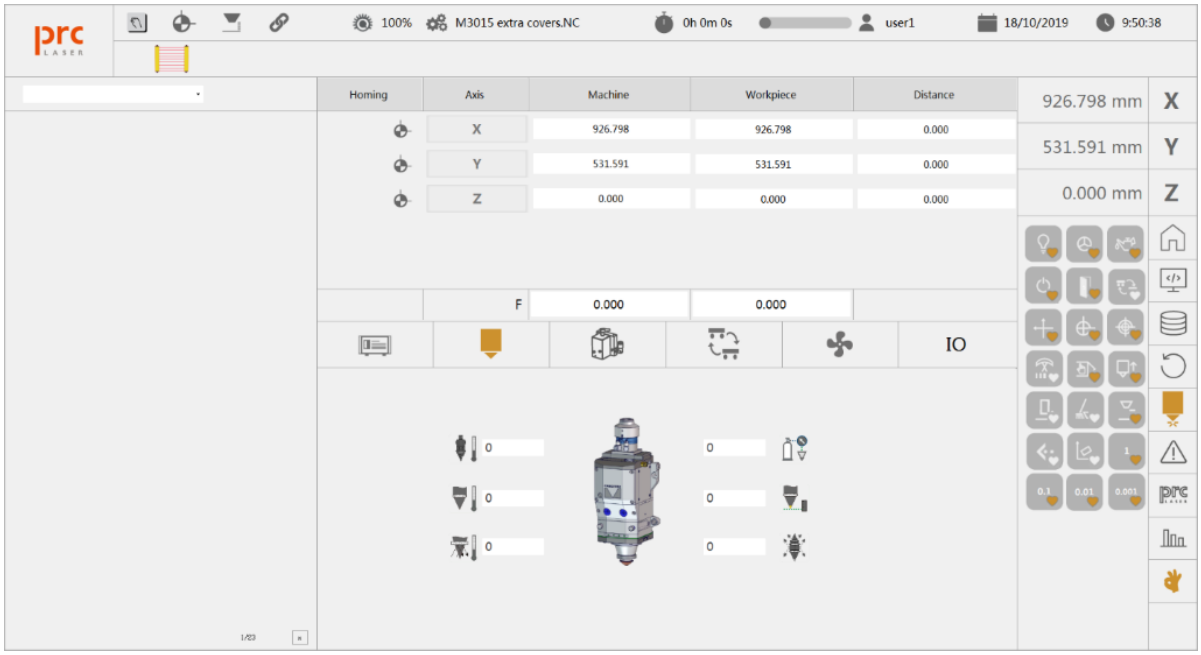
The fully graphical restart manager of PRC Laser G.L.A.S.S. allows the operator to restart a program that was interrupted from any desired point:



- ✓ The previous or next part
- ✓ The previous or next contour
- ✓ The previous or next block
- ✓ From the interruption point itself
- ✓ A given distance before the interruption point
- ✓ Or simple from any point selected by clicking on the graphical contour…

1.6. MACHINE INTERFACE

The PRC Laser G.L.A.S.S. offers the operator a complete overview of the status of both the machine and the different laser processing sub-systems.



On-line feed-back data is visualized for:

- ✓ Axes positions
- ✓ Feed-rate
- ✓ Laser source actual output power
- ✓ Laser process gas inlet and output pressures
- ✓ Actual capacitive distance measurement
- ✓ Etc...

****Fully Customizable for other Laser processes and customer requirements.**

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