

SIMULATOR

User manual

Ref 1307

INTRODUCTION

The CNC simulator provides the user with a complete tool to create, optimize and check programs directly at the PC. He can then transfer them directly on the machine and run them which means working faster.

The simulator operates the same way as a CNC installed on a machine. It offers the same features as the CNC and may be set with the same configuration as a real machine. It faithfully reproduces the behavior of the machine respecting the accelerations, speeds, etc. that are used in real life.

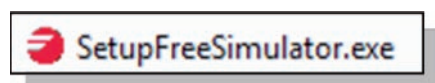
Its most common use will be:

- Technical training for programmers and operators in training centers..
- Editing/Simulation in design departments..
- Machining time estimate.
- Quotation preparation.



INSTALLATION

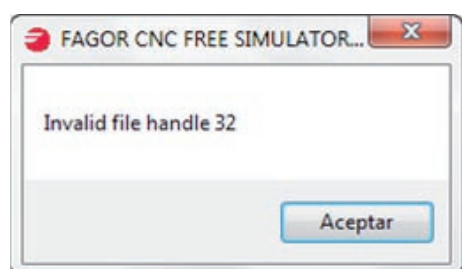
Run the file “SetupFreeSimulator.exe”.



It will show the following window. Press “Install” to continue.



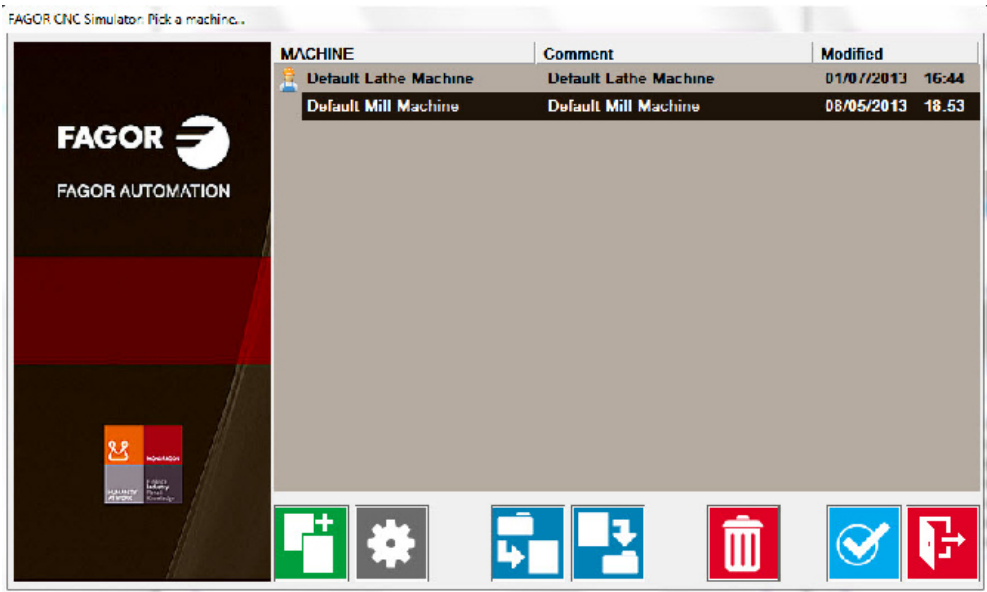
If during installation, a pop-up window appears with the message “Invalid file handle 32”, press “OK” and continue. It is an error that comes up because Outlook is active during installation, but it does not affect the final installation.



START -UP

Running the simulator:

The installer will have created the following icon on your desktop.:



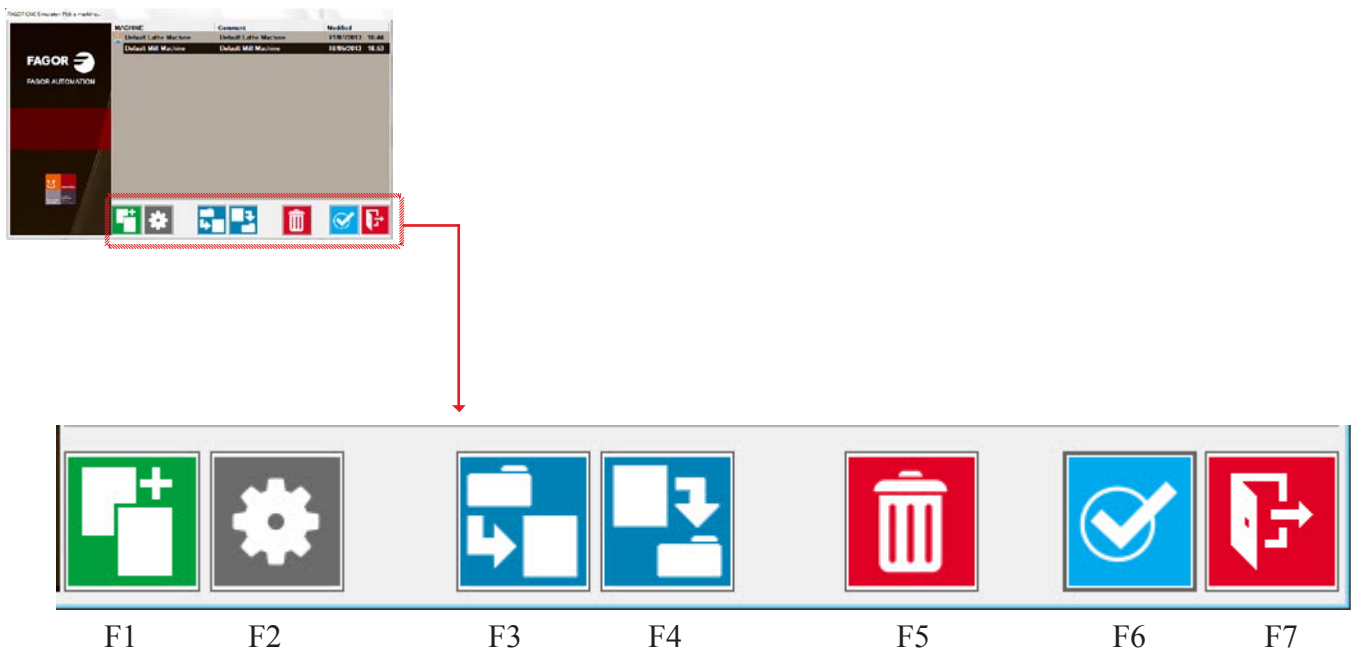
Machine selection (Mill-Lathe)

The first screen of the software shows the following options.
Machine library so the simulator starts up with a specific configuration.



MACHINE	Comment	Modified
 Default Lathe Machine	Default Lathe Machine	01/07/2013 16:44
Default Mill Machine	Default Mill Machine	08/05/2013 18:53

Options for working with that library:



F1 - Create a new machine using the current one as a template

F2 - Properties of the selected machine

F3 - Import a machine

F4 - Export the selected machine

F4 - Delete the selected machine

F6 - Run the simulator with the selected machine

F7 - Exit the program

KEYBOARD & SCREEN DESCRIPTION

Interface description

Select the machine model and press



When the program start-up is done, it will show the following information

** If you want to change the language go to page 8*

Main screen and
browsing keys



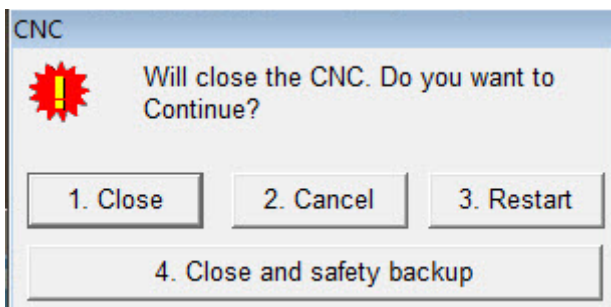
Alphanumeric
keyboard

Area for controlling
axes and spindle
(JOG)

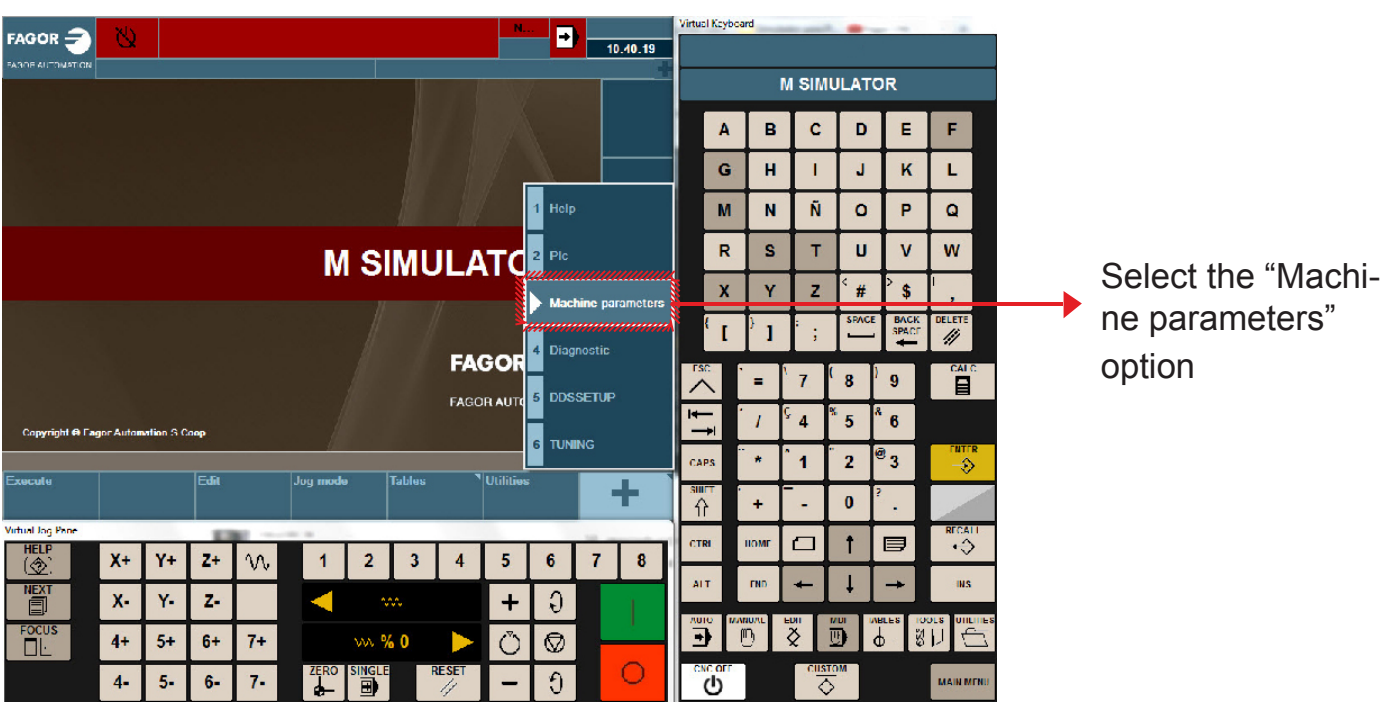
To close the application, press:



It will show the following menu, select “Close”



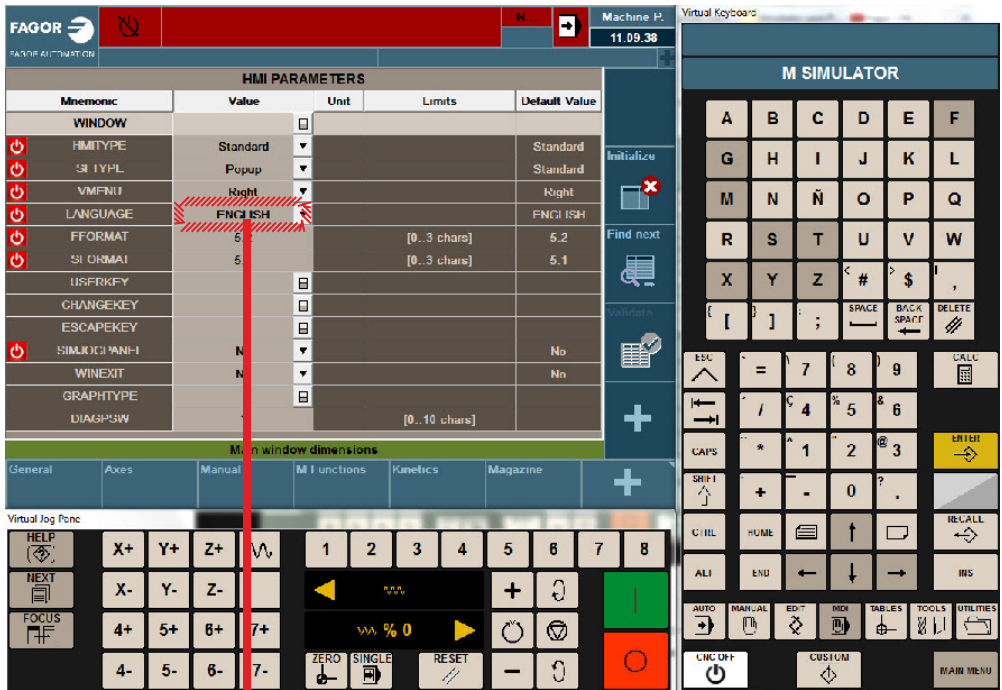
*Change the language



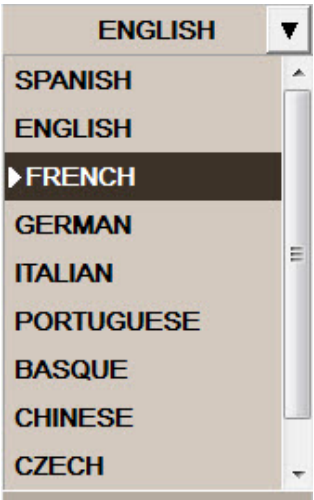


Select "HMI" parameter group





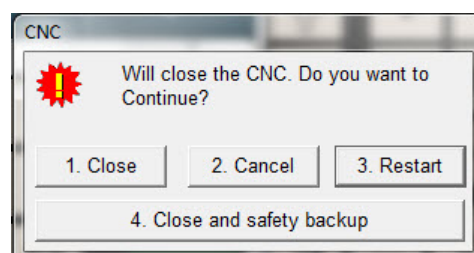
Select the language
you would like to use





To validate the new language you need to restart the application.

Select **"CNC OFF"** and after **"Restart"**



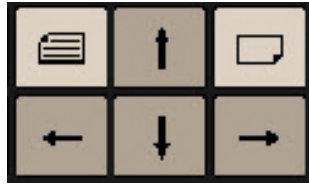
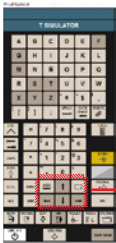
Alphanumeric keyboard description



Virtual Keyboard

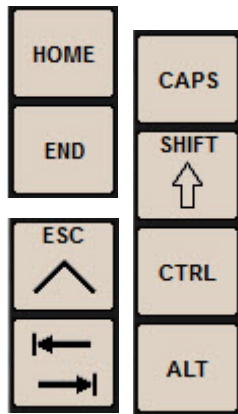
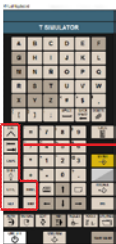


Keys to move the cursor



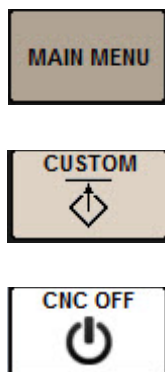
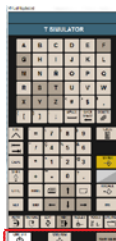
- The arrow keys move the cursor one position to the left, right, up or down.
- The previous-page or next-page keys show the previous or next page at the part-program or PLC program editor.

Classic PC keys



These keys work the same way as at your PC. They are included to provide the same operation as at a real CNC and to make the user's job easier.

Generic keys



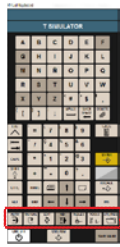
This key gives access to the main menu of the CNC, the home page

Key that may be configured by parameter to access the CNC work mode or execute an external application.

Key to close the simulator, turn the CNC off

Hotkeys to work modes.

The following keys provide access to the main work modes of the CNC.



Automatic – To select and run programs



Manual – (JOG) to run manual operations at the machine



Edit – To edit and simulate programs (verified) before executing them



MDI – To execute single blocks programmed by the user



Tables – To access part-reference tables, programming parameters, etc.



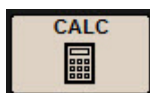
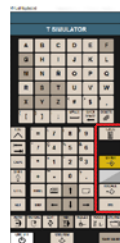
Tools – To access the tool table



Utilities – Work mode for managing files (similar to Windows Explorer).

Editing keys

The following keys help the user program and navigate (browse) in the editing modes.



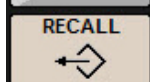
Calculator – It overlays a calculator whose results may be entered into various



It validates commands, data and program blocks of the editor.



It toggles the status of the icon when the focus is on it.



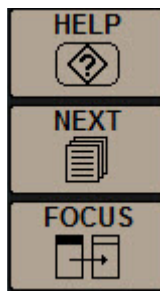
It restores data for editing and already programmed cycles for editing them.



Insert or overwrite. It allows inserting a previously edited cycle into a program.

Keyboard description (Area for controlling axes and spindle (JOG))

Browsing and help keys



It gives access to the chapter of the manual that describes the operation the

It is used to sequentially access the different available screens of the active work mode.

It is used to move the focus between the different windows of the screen.

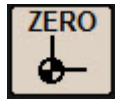
Axis control keys



The following keys may be used to move the axes in jog mode or during tool while machining.

The + and – signs indicate the moving direction of the particular axis and the “wavy” key defines the rapid movement at maximum speed (G00) or the speed programmed at the time (G01)

General purpose keys



It does a home search on all the axes at the same time.



Executes the selected program one block at a time (single block mode) stopping at the end of each line.



It initializes the system setting the initial conditions as defined by machine parameters.

Spindle control keys



Increase the spindle speed by a %



Orient the spindle



Decrease the spindle speed by a %



Start the spindle clockwise



Stop the spindle



Start the spindle counterclockwise.

Start/Stop keys



Cycle start key (START).
Execute the selected program in automatic mode, a block in MDI/MDA mode, etc.



Cycle stop key (STOP).
Interrupt the execution of the CNC that was launched with the START key

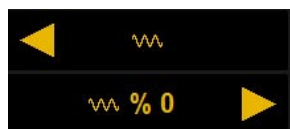
Configurable keys



The functions of these keys are defined by the machine manufacturer and they allow controlling the various devices of the machine.

In the simulation software, these keys have no associated function.

Movement and feedrate selectors



**Using the arrow keys (◀▶) the user can select:*

- The type of jog movement; Continuous, incremental or handwheels.
- The percentage of feedrate override, between 0% and 200%, for jog and automatic movements.

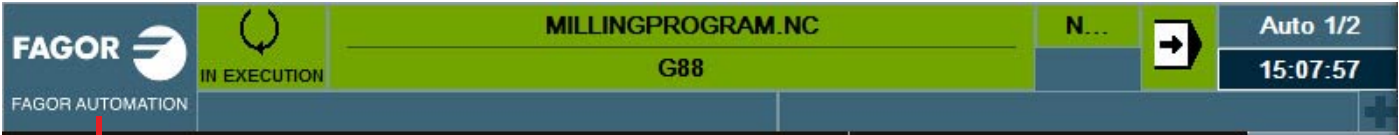
Description of the main screen and browsing keys

The simulator offers several hotkeys in screen areas for easier browsing (navigation).

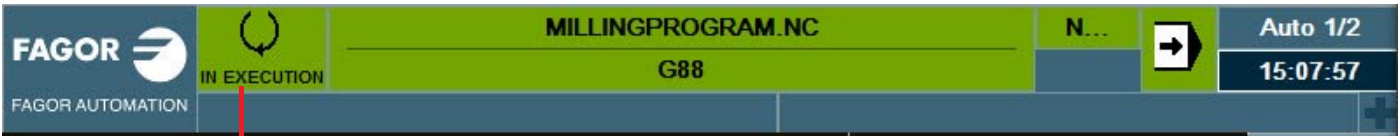
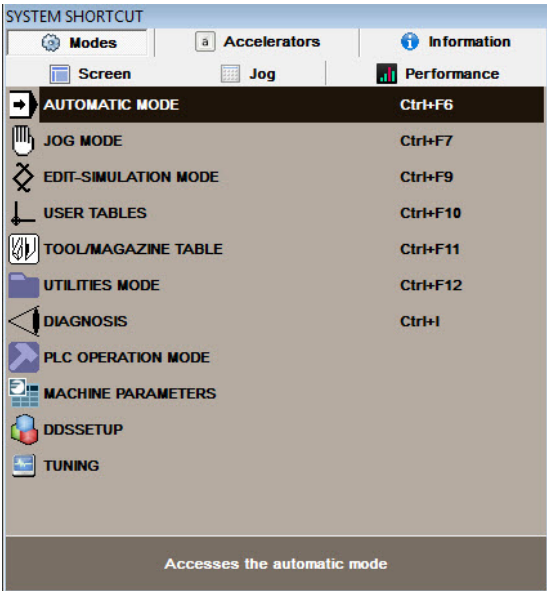


Main screen (Area for hotkeys)

The simulator offers several hotkeys in screen areas for easier browsing (navigation). Just click with the mouse on the indicated area.



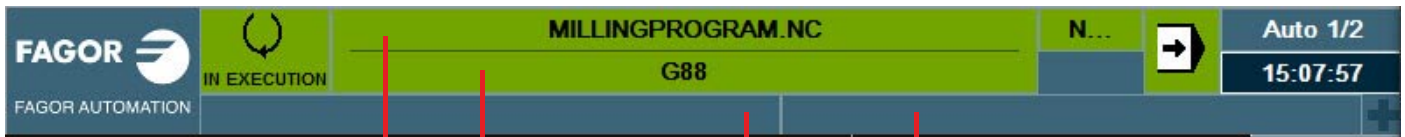
Simulator hotkeys.
Press “ESC” to exit



Icono.	Significado.
	Programa parado. Color de fondo: Blanco.
	Programa en ejecución. Color de fondo: Verde.
	Programa interrumpido. Color de fondo: Verde oscuro.
	Programa en error. Color de fondo: Rojo.



If the window is in an error state (red), press the RESET key to delete it and go on working



Name of the program in execution

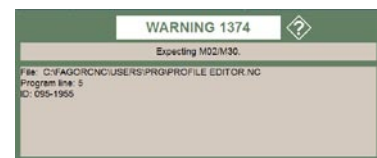
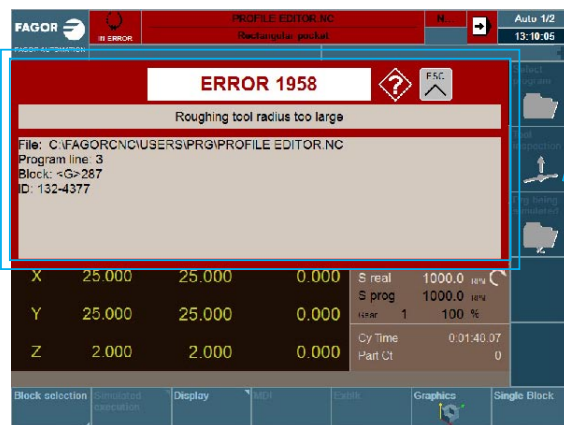
Warnings activated by the CNC

Cycle in execution in the program

Warnings activated by the PLC

Main screen (Warnings and Errors)

The CNC warns about possible errors and warns the user. Errors are displayed in red and warnings in green.



Errors may be canceled by pressing the "Reset" key and, sometimes, if the "ESC" is displayed by pressing that key. The "?" icon indicates that there is help for solving the problem by pressing the "Help" key.



Main screen (Conversational mode)

If the operator prefers it, Fagor Automation offers its conversational programming cycles. You don't need to master the ISO programming language, you just define the geometry of the part to be made, the tool and the machining conditions and the CNC will do the rest.

Fagor offers a particular work mode for this programming language that may be accessed by pressing the SHIFT and ESC keys at the same time.



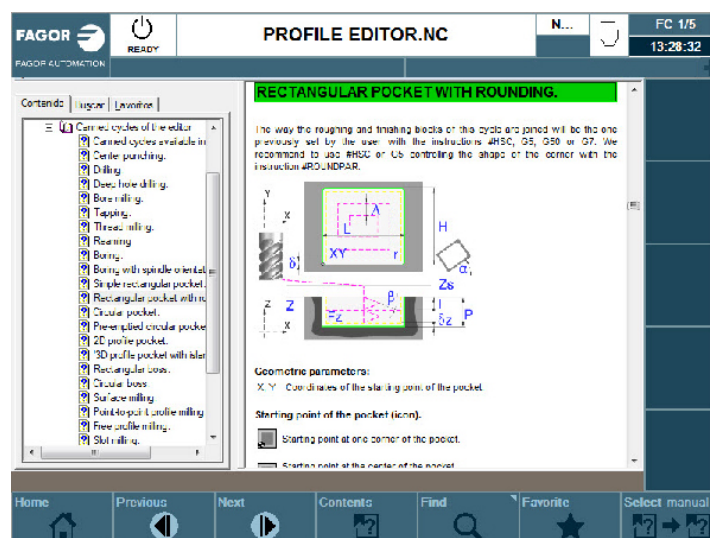
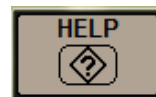
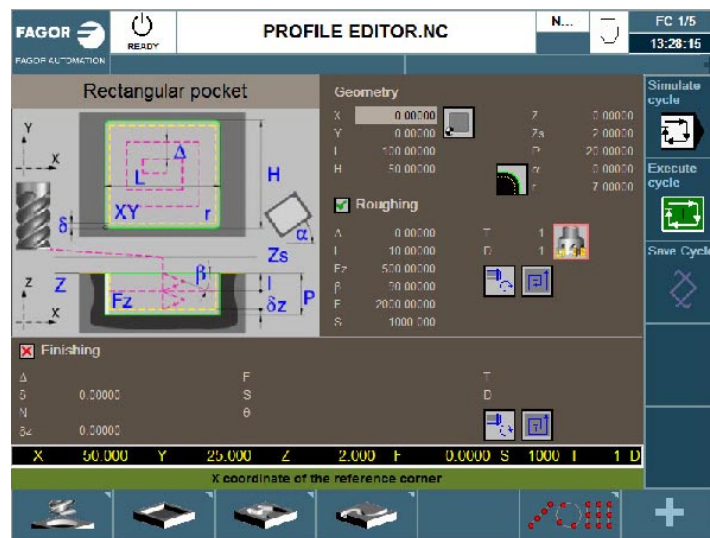
“SHIFT”+“ESC”



Note: For users already familiar with Fagor CNC 8055, this mode is activated by pressing SHIFT and then ESC. At this simulator these keys must be pressed at the same time.

Main screen (Integrated manuals)

The CNC integrates the operating and programming manuals. Pressing the HELP key, the CNC displays the chapter related to the operation being carried out at the time. Once inside the manuals, it is possible to consult any other information by browsing through its various chapters.



Press “ESC” to exit from the manuals area.