CYBELEC
INFRANOR GROUP COMPANY

ModEva Pac

User Manual

for Synchronized Press Brakes

April
2016
V2.3

Table of content

SAFETY

GENERAL SAFETY

The users must have READ and UNDERSTOOD, but most of all must RESPECT the directives described in this manual.

All people coming into contact with the machine on which the numerical control is installed, whatever their function or whatever state the machine is in (assembly, disassembly, start-up, production, maintenance, repairs) must have read and understood the requirements concerning the security and the entirety of the directives of operation described in the manuals delivered with the machine.

The operator must be properly trained to work with the machine on which the numerical control is installed. Improper use of the numerical control can cause heavy damage on equipment and/or injuries to people.

Modification of machine parameters can cause important material damage or lead to irregular product quality.

Do not expose the numerical control to excessive humidity so as to avoid any risk of electrocution and any deterioration of the equipment.

Make sure the numerical control is disconnected from the mains power before carrying out any cleaning. Do not use liquids based on alcohol or ammoniac.

In case of malfunction of the numerical control, call a technician.

Do not expose the numerical control to direct sun rays or any other heat source.

Do not place the numerical control in the neighborhood of magnetic equipment such as transformers, motors or devices which generate interference (welding machines, etc.)

ModEva with Windows Operating System

The CYBELEC ModEva's equipped with Windows have been installed at the factory with a configuration especially made for the numerical control.

This configuration ensures that a minimum of files are present on the ModEva, offering in this way a maximum speed to execute the programs. This configuration also ensures that the drivers are correct and that the whole guarantees an optimal functioning of the numerical control.

As Windows is a very open system, it is advised not to modify the Windows installation or to install other programs. You risk disturbing the functioning of the numerical control.

If you wish to install a network or a printer, please call a specialist.

Remember that the ModEva is equipped with USB ports and that it is very easy or even tempting to install external software, utilities or games coming from the Internet or specialized magazines.

CYBELEC accepts no responsibility in case of malfunctioning of the numerical control if other programs have been installed or if the original configuration has been modified.

We also remind you that the Windows environment is infested with viruses and utmost caution is to be taken when using data or software coming from the outside. A regular back-up enables you to get your data in safety.

We certify that our numerical controls are delivered virus free.

The Windows Operating System, like on every computer, is very sensitive to inappropriate shutdown. Make sure that you properly turn the system off (see Leaving the Software, page 37), and NEVER by cutting the power off!

Signs and Icons appearing in this Manual

While using this manual, you will come across the signs and icons represented here below: they are directly related to the safety and security of persons. Carefully follow this advice and inform others about it.

General warning

This warning sign appears in the manual whenever it is necessary to pay attention to rules, instructions or advice. The correct sequence of operations is to be followed in order to avoid damage to the machine.

Symbolizes a serious personnel danger

Information

This warning sign appears in this manual whenever an important information needs to be taken into consideration. Pay attention to this sign and follow the instructions given.

Settings

This sign appears in this manual whenever setting instructions are given. Pay attention to this sign and follow the sequence of instructions given.

Navigation

This icon appears in this manual to give navigation information, to give the path to the subject treated in the chapter.

Getting started with ModEva Pac

Depending on software evolutions and the press brake controlled by the ModEva (configuration/capabilities), the present manual may not fully correspond to the ModEva that you currently have. However, differences are only minor.

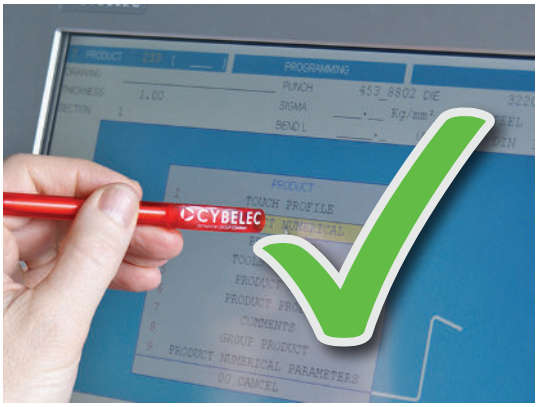
Touchscreens are pressure sensitive.

Do not press down hard on the screen.

Pressing hard on the screen will damage the display. Such damage is not covered by manufacturer warranty!

Do not use sharp and/or pointed objects (sheet metal, screwdriver, metal pen ball, etc.) to touch the screen; only use your fingers (with or without gloves on) or a plastic pen. Make sure that your gloves do not have metal particles encrusted in the finger tips as they may also damage the screen.

Take a few minutes to practice pressing gently on the screen, you will find that the screen is very reactive and it is pleasant to use.



Screen Cleaning

Turn off the ModEva to clean its screen. Use only a damp and smooth cloth with soap or a neutral detergent.

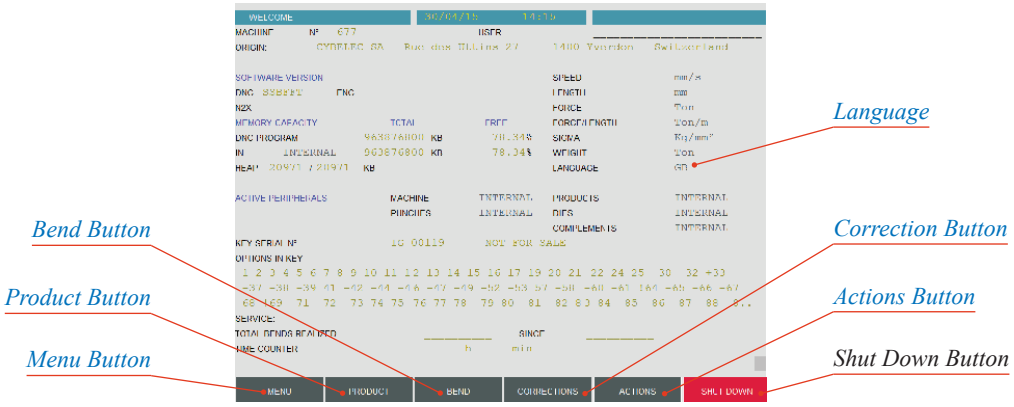
NEVER use solvent, petrol, benzene, alcohols, etc.

General navigation

The main navigation through the many different pages of the ModEva software is done by mean of the buttons at the bottom of the screen.

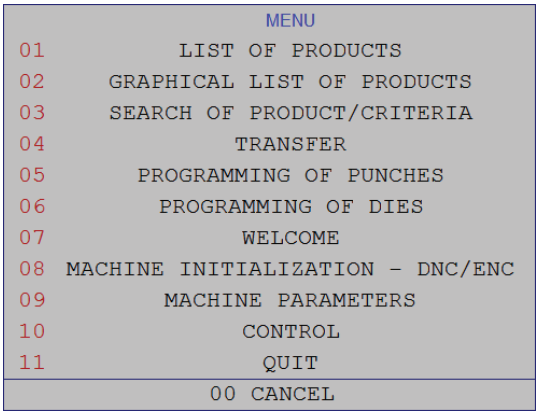
The pages contain fields of different colors:

- The blues fields are fixed texts, such as category titles or headings.
- The gray fields, when touched, open a pop-up window with a list a choices.
- The black fields are those where data is to be entered.
- The khaki fields are information data fields, like real position of axes or actual value of a variable.



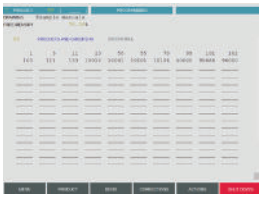
Menu Button

The MENU button allows you to access programming pages, whether they are related to products, tools or general machine parameters. When touching the MENU button, the following pop-up window is displayed.



List of Products

Allows extracting products stored in the NC, in numerical increasing order.



Graphical List of Products

Allows extracting products stored in the NC, in numerical order, and with the graphic associated to them.

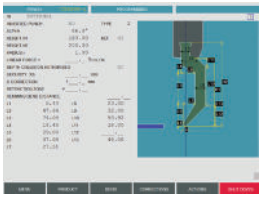
Search of Product/Criteria

Allows searching for different products stored in the numerical control according to certain criteria.

Transfer

Allows making data transfers from one memory to another (USB, network, etc...).

Programming of Punches



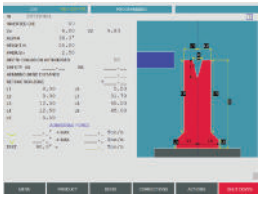
Programming of all punches is done from this page.

All the dimensions relative to the tool are introduced here.

A drawing representing the tool is displayed on the right of the screen.

See Creating a Tool, page 12.

Programming of Dies



Programming of all dies is done from this page.

All the dimensions relative to the tool are introduced here.

A drawing representing the tool is displayed on the right of the screen.

See Creating a Tool, page 12.

Welcome

Main data for the machine and the numerical control.

Gray color fields are multiple choice fields which can be modified (see General navigation, page 5).

Machine Initialization DNC/ENC

This page is reserved for the technical maintenance of the numerical control or the machine.

It allows clearing the ModEva data and to modify the physical indexes of the machine.

The level 3 password (see Access by Password, page 34) is necessary to intervene on this page.

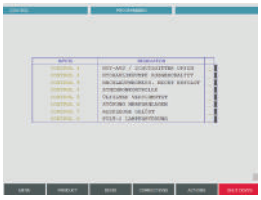
Machine Parameters

This page is the first of the pages which constitute the list of all the parameters which condition the functioning of the numerical control.

This data can only be modified with a level 3 password (see Access by Password, page 34).

This data may be modified only with the help of competent technical support.

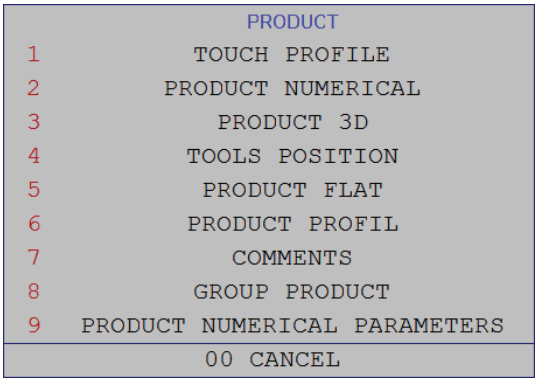
Control



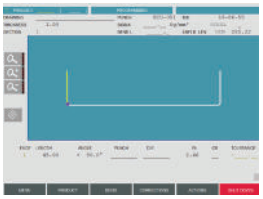
Displays eventual messages related to specially configured inputs Control 1 to 8.

Product Button

The PRODUCT button allows you to access all the different pages necessary to create products. When touching the PRODUCT button, the following pop-up widow is displayed.



TouchProfile



Allows the operator to create a product by intuitively drawing a profile directly on the screen.

See TouchProfile Programming, page 17 for more information.

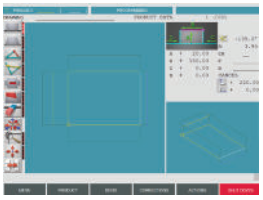
Product Numerical

Allows the operator to construct and calculate a product and to visualize the profile in real time.

See L-Alpha Programming, page 19 for more information.

Product 3D

Allows the operator to create a product in 3 dimensions. See also 3D Programming (optional, only for off-line version), page 20.



Tools Position

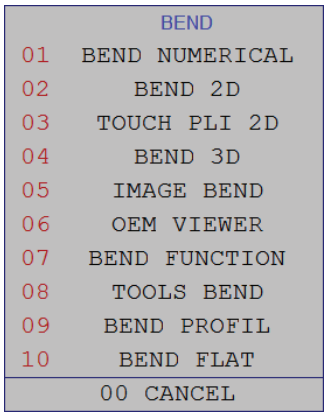
Allows defining several work stations. See also Tooling Management, page 12.

Comment

Allows completing the product data with a series of commentaries. These commentaries are programmed using a PC software.

Bend Button

The BEND button allows you to access the different work pages, from which the created products can be produced. When touching the BEND button, the following pop-up window is displayed.



Bend Numerical

Recapitulates all the data for the current sequence.

See Bend Numerical Page (Direct Programming), page 25.

Bend 2D

Allows simulating the feasibility of the product and correcting the bending order if necessary.

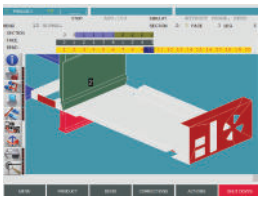
See Bend 2D Page, page 22.

Touch Bend 2D

Allows the operator to manually determine the bend order, as well as the gauging position.

See Touch Bend 2D Page, page 23.

Bend 3D



Allows the operator to simulate the feasibility of the product and to correct, if necessary, the stop position as well as the position of the product relating to the tools.

This page is optional.

Image Bend

Allows the operator to visualize the part in 3D, while at the same time getting instruction on how to handle the part.

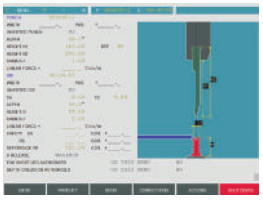
Is only available if the part was created on a CAD software able to generate a Cybelec compatible program with images.

Bend Function

Allows programming any possible auxiliary functions of the machine.

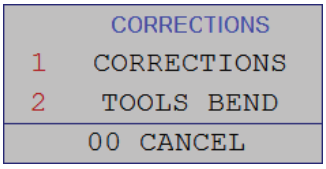
Tools Bend

Allows modifying the position and the width of the tools mounted on the machine. Certain safety factors can also be modified here.



Correction Button

The CORRECTION button allows you to access the corrections page, where the individual bends of a part can be fine-tuned. When touching the CORRECTION button, the following pop-up window is displayed.



Corrections

Allows applying the corrections to the different machine axes as a function of the results obtained during bending.

See Bending, Tests and Corrections, page 27.

Actions Button

The ACTIONS button allows you to choose from a list of action available on the page where you currently are. The content of the list changes contextually. Here below are examples of the pop-up windows being displayed when touching the ACTIONS button.

	ACTIONS
1	LOAD
2	DELETE
3	MEMORIZE
4	CYBTOUCH CONVERTER
5	MARK PRODUCT
6	ERASE MARKS
7	RECONSTITUTE LIST
8	PRINT SCREEN
	00 CANCEL

	ACTIONS
1	DELETE SECTION
2	NEW PRODUCT
3	SEARCH PRODUCT
4	SEARCH FOR PRODUCT IN FILE
5	MEMORIZE PRODUCT
6	MEMORIZE PRODUCT IN FILE
7	CALCULATE
8	DECOMPOSE THE IDEAL CURVE
9	PRINT SCREEN
	00 CANCEL

Language

To browse through the available languages, simply touch LANGUAGE field on the screen.

Available languages are:

- CH 中文.
- CZ Český.
- DE Deutsch.
- DK Dansk.
- ES Español.
- FI Suomi.
- FR Français.
- GB English.
- GR Ελληνικά.
- HU Magyar.
- IT Italiano.
- KO 한국의.
- NL Nederlands.
- PL Polski.
- PT Português.
- RU Русский.
- SE Svenska.
- SI Slovenski.
- TR Türkçe.
- TW 台灣.

	LIST OF CHOICES
01	CH
02	CZ
03	DE
04	DK
05	ES
06	FI
07	FR
08	GB
09	GR
10	HU
11	IT
12	KO
13	NL
14	PL
15	PT
16	RU
17	SE
18	SI
19	TR
20	TW
	00 CANCEL

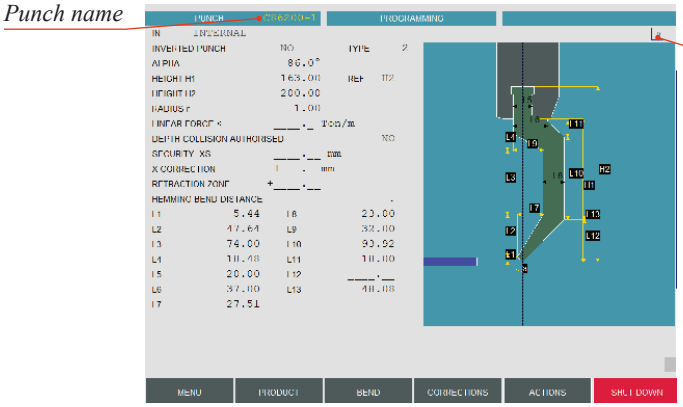
The list of available languages is subject to change and may increase over time.

Tooling Management

Tooling management involves the creation, configuration and positioning of the tools that will be used on the machine. These tools are then taken into account in bend calculations.

Creating a Tool

MENU → Programming of punches/dies

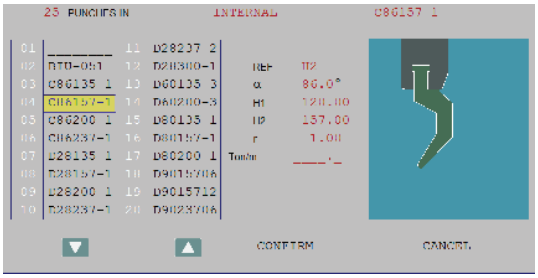


Touch here to display the tool's default shape (brown color), allowing an easier identification of the various dimensions

When it comes to creating new tools, the easiest way to proceed is often to modify an existing one. The process is the same whether you want to create a new punch or a new die.

Setting Instructions:

1. If you know the name of the tool you want to modify, touch the **Punch** field on the top left corner and enter directly the desired tool's name.
2. If you don't know which tool looks the most like the one you want to create, you can touch and hold the **Punch** field until the message **OK** appears in the top right corner. The list of tools appears and it is then possible to browse visually through the existing ones.

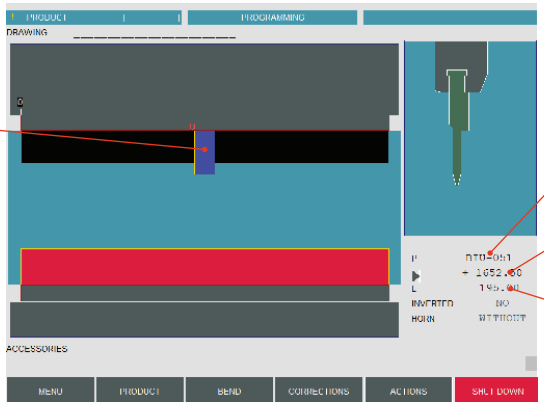


3. Modify the necessary fields, enter a new name and save the new tool by touching the ACTIONS button and selecting **Memorize** in the list.

For more information about the tools' creating process, please refer to the ***Tools*** chapter of the ***2D Reference Manual.***

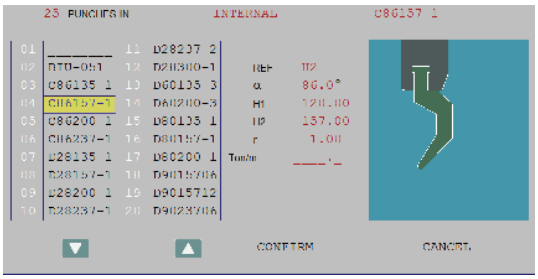
Positioning a Punch

PRODUCT → Tools position



Setting Instructions:

1. Touch the beam (it will turn blue) to select the punch. The letter **P** is displayed next to the punch name's selection field.
2. Touch the **P** field. The window to the right is displayed.
3. Touch the desired punch. Touch it a second time to select it, or simply touch **Confirm**.
4. Enter the tool's desired position in the ▶| field.



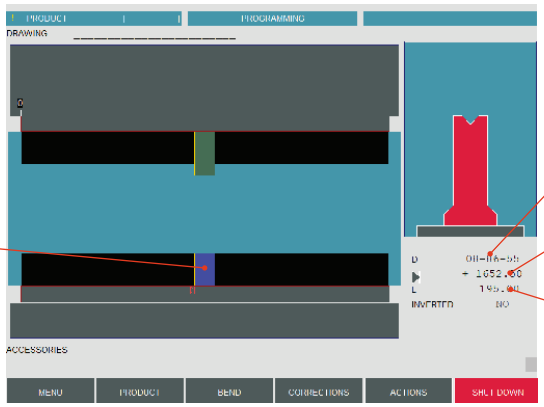
Introducing a value equal to the half of the beam's width minus the half of the tool length will place the tool in the center of the machine (in our example: 3500/2 – 195/2 = 1652.5 mm).

5. Modify the **L** field by introducing the value (here **195.00**) which corresponds to the required tool length. In the front view the selected tool appears in dark blue.

Positioning a Die

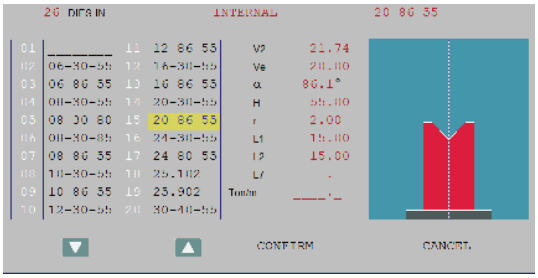
PRODUCT → Tools position

Proceed in the same manner as for Punch Adjustment.



Setting Instructions:

1. Touch the table (it will turn blue) to select the die. The letter **D** is displayed next to the die name's selection field.
2. Touch the **D** field. The window to the right is displayed.
3. Touch the desired die. Touch it a second time to select it, or simply touch **Confirm**.
4. Enter the tool's desired position in the ▶| field.



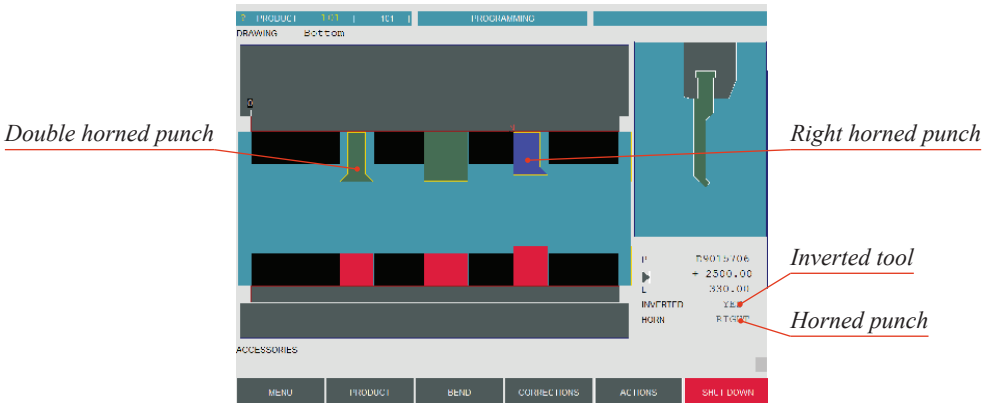
Introducing a value equal to the half of the table's width minus the half of the tool length will place the tool in the center of the machine (in our example: 3500/2 – 195/2 = 1652.5 mm).

5. Modify the **L** field by introducing the value (here **195.00**) which corresponds to the required tool length. In the front view the selected tool appears in dark blue.

Adding Working Stations

PRODUCT → Tools position

Most parts require different sets of tools to be bent. It is therefore possible to define several working stations in the **Tools Position** page.



Setting Instructions:

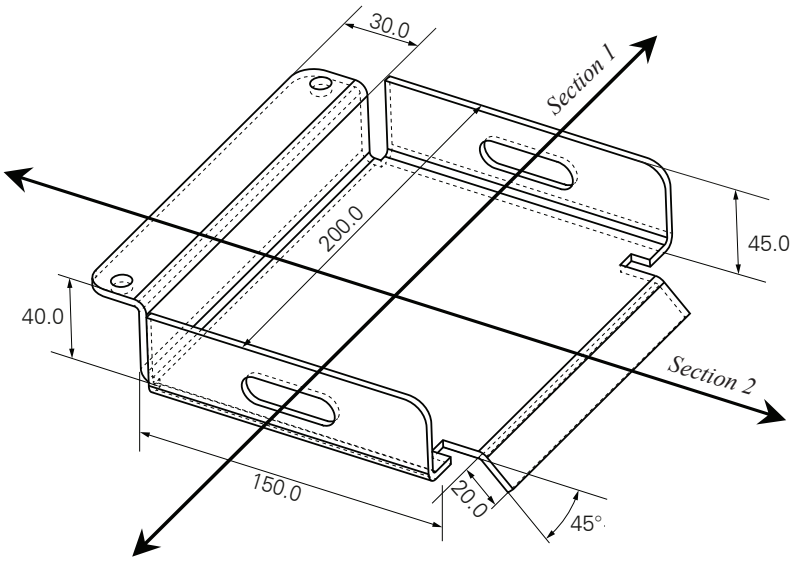
1. Once the first working station is defined, a touch on either the beam or the table will allow adding another tool.
2. The procedure to select, define and position the tool is the same as the one explained before (see Positioning a Punch, page 13 and Positioning a Die, page 14).

Creating a Part Program

This chapter describes, by means of a concrete example, diverse ways of using your ModEva.: with the TouchProfile Programming, with the L-Alpha Programming (see page 19), with the Bend Numerical Page (Direct Programming) (see page 25) and with the 3D Programming (optional, only for off-line version) (see page 20).

We assume in this part that all the necessary tools have already been programmed as well as the machine parameters.

The product being used as an example is composed of 2 sections (profiles), but the procedure is identical for one or several sections.



The side flaps with the oblong holes, which are included in section 1, will be made first, so that a punch of identical length as that for section 2 can be used.

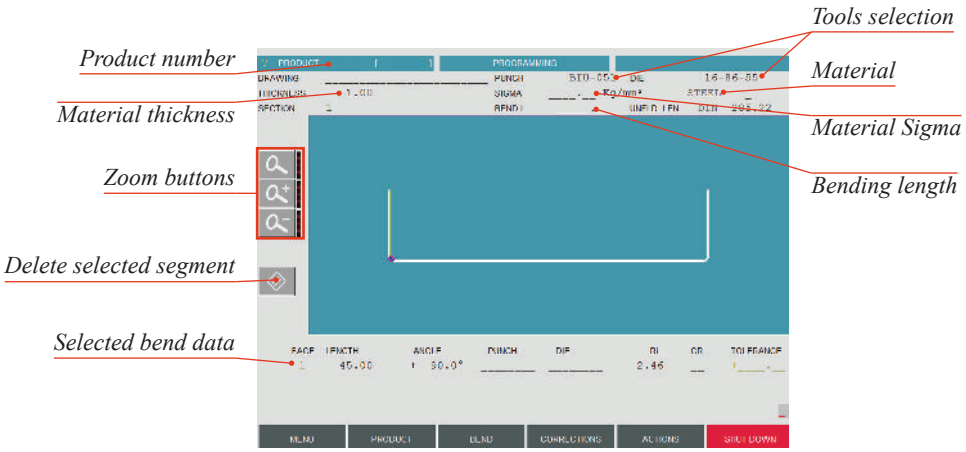
We presume that the operator knows how to reach level 1. Should this not be the case, see chapter Protection of Access Levels, page 32.

These procedures indicate to the operator a programming method recommended by CYBELEC, enabling to assimilate by the example the functioning of the software.

For additional information, please consult the ***2D Reference Manual*** and/or the ***3D Reference Manual***, which each contains a table of contents and a detailed index facilitating the search for information.

TouchProfile Programming

PRODUCT → TouchProfile

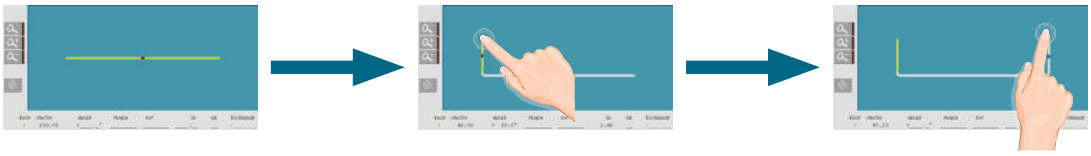


In this mode, the operator can very intuitively draw a profile directly on the screen.

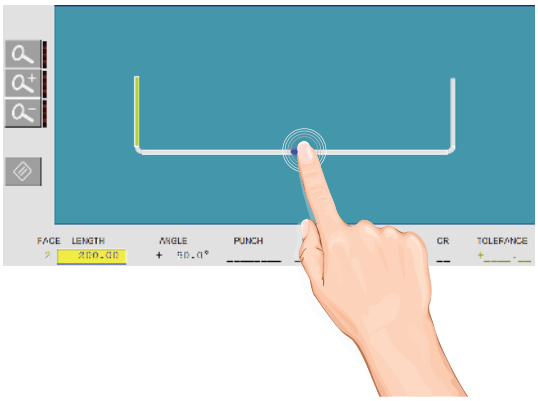
Setting Instructions:

1. Touch the ACTIONS button and select **New product** in the list.
2. First select the material, enter its thickness and Sigma, enter the bending length, and select the tools to be used for the part by touching their respective fields.

Selecting tools directly from the TouchProfile page places them automatically in the middle of the machine. To change their position, see Tooling Management, page 12.



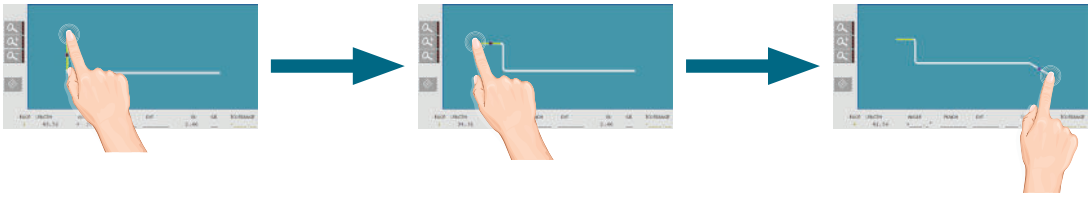
3. Draw the profile of section 1 (see Creating a Part Program, page 16) by touching the screen where you want to add a segment.
4. Touch on the middle of a segment or on an angle to modify its value. A purple dot indicates the selected segment, and its value is highlighted in the bend information line.



Touching this icon allows erasing the selected segment.

5. Proceed in the same manner to adjust all segments and angles.

6. Touch the **SECTION** field, enter the value of **2** and leave the field. This automatically initializes a new page for programming section 2.
7. Draw the profile of section 2 (see Creating a Part Program, page 16) by touching the screen where you want to add a segment.



8. Proceed in the same manner as for section 1 to adjust lengths and angles values.

Special functions for a bend

9. If a bend needs special parameters (large radius, special tool), it can all be programmed on the bend data line of the corresponding sequence.
   - Activate a special tool by touching the corresponding field, and select it from a list (deactivate with the Del button).
   - Change the value of the radius (**RI** field) and define how many steps the NC will make to execute it (**CR** field).

Programming 99 in the **CR** field will automatically calculate the maximum possible step bends. The resulting value may be reduced. However, if it is increased over the maximum calculated value, the resulting radius and angle will be drastically affected.

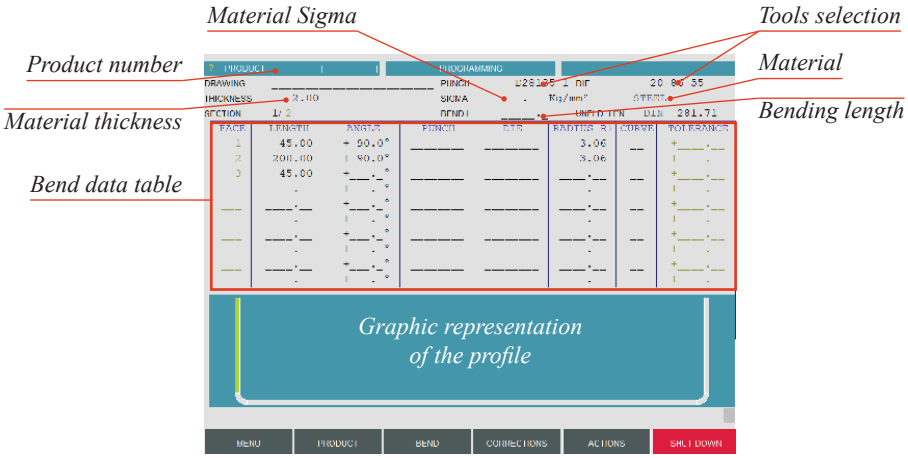
A special punch or /and die means there must be an additional working station.

10. Once all the segments and angles adjusted, go to the Bend 2D Page (see page 22).

L-Alpha Programming

PRODUCT → Product Numerical

In this mode, the operator can define each step (length and angle) of a profile in a table. In the bottom section of the page, the operator can see the profile being automatically drawn as a function of the introduced data. The value of the internal radius is automatically calculated as a function of the selected tools.



When introducing data in L-Alpha mode, simply begin from one of the extremities of the profile and fill in the values of each face and angle one after another, with the last face having no corresponding angle.

Setting Instructions:

1. Touch the ACTIONS button and select **New product** in the list.
2. First select the material, enter its thickness and Sigma, enter the bending length, and select the tools to be used for the part by touching their respective fields.

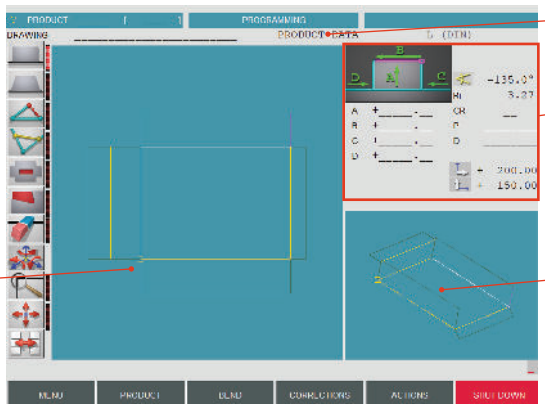
Selecting tools directly from the L-Alpha page places them automatically in the middle of the machine. To change their position, see Tooling Management, page 12.

3. Touch the first field of the **Length** column and introduce the value of **45.00** which corresponds to the first length.
4. Touch the first field of the **Angle** column and introduce the value of **90°** which corresponds to the first angle to be bent.
5. Proceed in the same manner for all steps and angles of the profile of section 1 (see Creating a Part Program, page 16).
6. Touch the **Section** field, enter the value of **2** and leave the field. This automatically initializes a new page for programming section 2.
7. Proceed in the same manner as for section 1 to define lengths and angles values.
8. If a bend needs special functions, see Special functions for a bend, page 18.
9. Once all the segments and angles defines, go to the Bend 2D Page (see page 22).

3D Programming (optional, only for off-line version)

BEND → Product 3D

In this mode (available only on the ModEva software with 3D option), the operator can conceive a part directly in 3 dimensions. The definitions of the different icons you will encounter through these pages are described in the *3D Reference Manual*, in chapter *Definition of the Icons*.



Touching the display window inverts the two-dimensional and the axonometric views, allowing the operator to create his part in two or three dimensions.

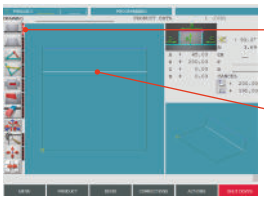
Setting Instructions:

1. Touch the ACTIONS button and select **New Product** in the list.
2. Touch the **Product Data** field and select the material, enter its thickness and Sigma, enter the bending length, and select the tools to be used for the part by touching their respective fields.

Selecting tools directly from this window places them automatically in the middle of the machine. To change their position, see Tooling Management, page 12.

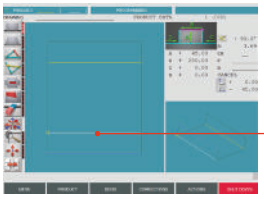
3. Touch **Quit** to confirm the chosen values.
4. Touch the ACTIONS button and select **Modify 1F** or **Modify 2F**. The difference between the two functions is:
   - **Modify 1F**: Shows the product in plan mode (2D).
   - **Modify 2F**: Shows the product in plan mode and in axonometric mode (3D).
5. Touch this button to add a rectangular face. The base rectangle appears in plan mode in the work window as well as in axonometric mode. The tool window is adapted.
6. Introduce the dimensions for **A** and **B** (in our example: **150.00** and **200.00**).

7. Touch this button again to add a rectangular face.



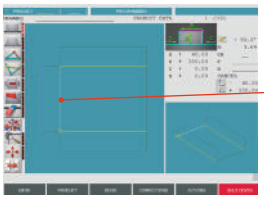
The red rectangle to the right of the icons lights up and indicates that the function is active.

8. Touch the segment of the outline to which the side is to be added.
9. In the tool window, adjust the height of the side (field **A**, here **45.00**). The angle value is 90° by default. The internal radius is already calculated.
10. Add a second side. The same function still being active, simply touch on the lower segment where the side is to be added.

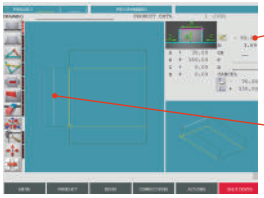


The value A has been memorized and is automatically attributed to the new side.

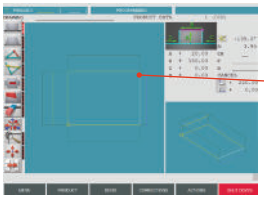
11. Add a third side. Touch the left segment where the side is to be added (the function remains active until deactivated).
12. Enter **40.00** in the **A** field in place of the previous memorized value (45.00).



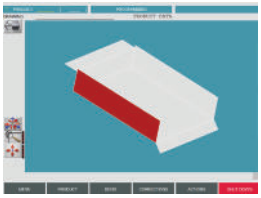
13. Add a fourth side by touching the left segment where the side is to be added.
14. Enter **30.00** in the **A** field in place of the previous memorized value (40.00), and change the direction of the side by entering **-90.0°** for the angle value.



15. Add the last side by touching the right segment.
16. Change field **A** value to **20.00**, and angle value to **-135.0°**.

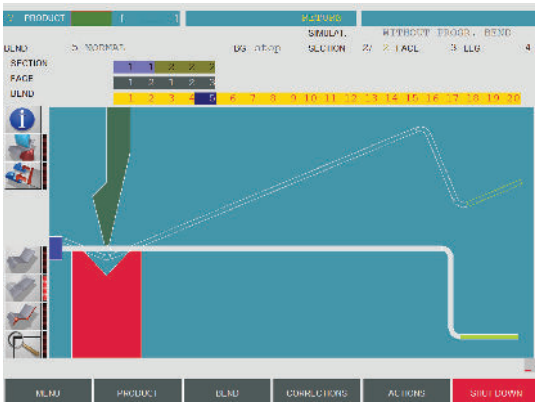


17. To check the construction, touch the ACTIONS button and select **Visualize**.
18. To come back to the construction mode, touch the ACTIONS button and select **Modify 1F** or **Modify 2F**.
19. The product is now finished, go to the Bend 2D Page (see page 22).



Bend 2D Page

BEND → Bend 2D



Setting Instructions:

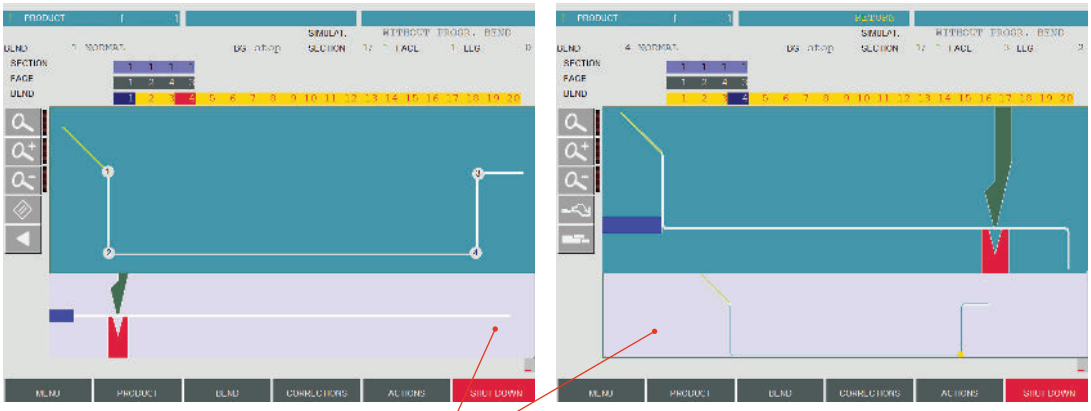
1. At this point, a product must have been programmed, using one of the modes previously explained.
2. In the **Simulat.** field, choose the option **Without Progr. Bends**.
3. Touch the ACTIONS button and select **Search Bending Range** in the list.
4. The message **Simulating Runs...**, then **Calculating...** appears in the interactive field on the top right-hand corner of the screen.
5. The succession of sequences can then be visualized using the PgUp and PgDn keys.

The operator has the possibility to modify the bending order (see Touch Bend 2D Page, page 23) or to ask the software to respect specific criteria like minimum number of swings or returns. To do that, please refer to the ***2D Reference Manual,*** section ***Simulation criteria.***

6. In case the software program does not find any solution, the bending order must be imposed manually (see Touch Bend 2D Page, page 23).

Touch Bend 2D Page

BEND → Touch Bend 2D



Touch the drawing to toggle between Bend Order page (left) and the Gauging page (right)

Whether this page is used to change the order of the bends automatically calculated on the Bend 2D Page (see page 22), or to manually determine this order, it works just the same: the order of the bends must be defined first, and then the gauging solutions can be determined.

Setting Instructions:

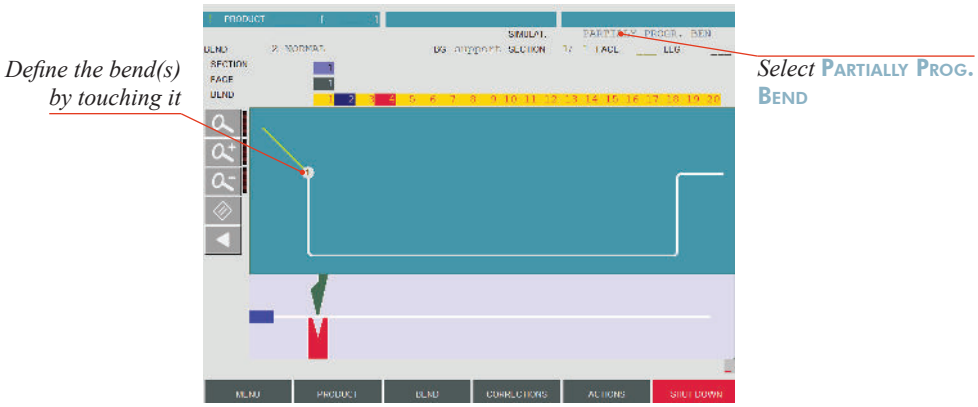
1. Make sure that the screen displays the Bend Order page, and touch the bends in the order that you want them performed. A small number is displayed on the bend, indicating its position in the sequence.

Pressing the back ◀ button will erase the last bend in the sequence. If you wish to delete all bends, simply touch the ◈ button.

2. When the last bend is defined, the display automatically switches to the Gauging page.
3. Use the PgUp and PgDn keys to browse through the bend sequence and adapt the gauging if necessary using these buttons:
   - to switch to the next gauging point.
   - to switch to the next gauge type (stop, support, special, etc.).

Partial bend order calculation

When the operator needs to impose the first bend – or couple of bends – to be executed on a part, but the rest can be automatically calculated, the following method can be used:



SETTING INSTRUCTIONS:

1. Touch the bend(s) that you want to execute first.
2. In the SIMULAT. field, choose the option PARTIALLY PROGR. BENDS.
3. Touch the ACTIONS button and select SEARCH BENDING RANGE in the list.
4. The message SIMULATING RUNS..., then CALCULATING... appears in the interactive field on the top right-hand corner of the screen.
5. The bending order is calculated for the remaining bends. The whole can be visualized as usual using the PgUp and PgDn keys.

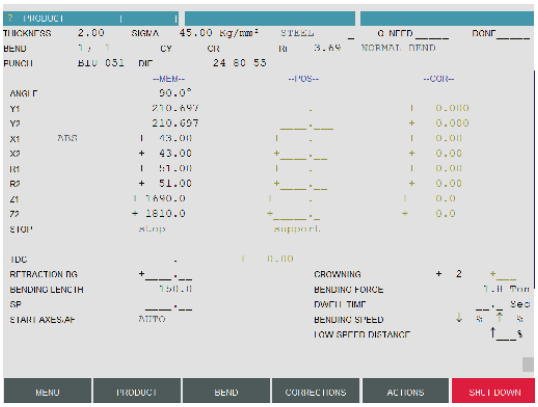
If other bends than the first one must be defined, please see Bend 2D Page, page 22.

Bend Numerical Page (Direct Programming)

BEND → Bend Numerical

This type of programming is often used for simple products or by operators having worked on conventional press brakes without numerical controls.

This page is very user-friendly, for the operator has on one single screen all the information and fields necessary for the programming of his product.



The bending order is chosen by the operator, since he programs directly each bend.

In this example, we will program the part described in Creating a Part Program (see page 16).

Setting Instructions:

1. Touch the ACTIONS button and select **New Product** in the list.
2. On the top of the screen, select the material, enter its thickness and Sigma, and select the tools to be used for the part by touching their respective fields.
3. Program the required **Angle** (here **90.0°**). The Y depth will be calculated according to the tools and the material already programmed. It is also possible to directly enter the Y1 / Y2 values without programming the angle.
4. Program the real position of the back gauge **X1** (here **43.00**). **X2** can be individually modified if different from **X1**.

The programming of the real position of the back gauge requires of the operator to subtract (approximately) the steel thickness from the external dimension of the product.

5. If necessary, program the specific data for the current sequence (see Position of axes and other functions, page 26)
6. The two bends of section 1 (see Creating a Part Program, page 16) being identical, enter **2** in the **CY** field (CY stands for cycle, meaning this sequence is repeated twice in the program).
7. To create the subsequent sequence, press the ACTIONS button and select **Copy Bend** in the list. It can be seen that all the data has been copied into the second sequence.

8. Proceed in the same manner as for section 1 to define lengths and angles values.

There is another way to program on this page, which has however some limitations depending on the product and the chosen bending order. It consists of entering the external flange dimension in the X field of the back gauge, and then programming a constant negative correction (see Bending, Tests and Corrections, page 27) corresponding to (approximately, according to your experience with the tools and the material) the material thickness.

Position of axes and other functions

The bottom section of the Bend Numerical page contains all the extra parameters for a bend. Some, like the bending force, are calculated automatically. But all these values can be modified by the operator.

BEND → Bend Numerical

According to his needs, the operator can modify the following items:

- TDC, for Top Dead Center. If not programmed, the beam will rise to the maximum TDC.
- Retraction BG, for the back gauge retraction.
- Bending Length, defines the length of the part being bent, this parameter must already have been defined during the part programming phase.
- SP, for Switch Point. The point where the beam switches from High Speed to Bending Speed.
- Start Axes/AF, setting this parameter to External gives manual control over the back gauge movement. This means the operator must personally give the start to the back gauge movement, using for example the foot switch or the start button.
- Crowning, if available, is automatically calculated.
- Dwell Time, defines the amount of time during which the pressure is maintained.

- **Bending Speed**, defines the downward bending speed and the upward moving speed from BDC to Pinch Point point.
- **Low Speed Distance**, defines the portion (expressed in %) of the upward movement between the TDC and the Pinch Point which will be carried out at low speed; the continuation of the upward movement is made at high speed.

Complementary explications are found in the *2D Reference Manual.*

Bending, Tests and Corrections

This chapter explains how to proceed in order to execute a product. This way of doing is destined only to demonstrate how to use the numerical control.

The testing and adjusting operations can be carried out in the order decided by the operator.

Setting Instructions:

1. Go into semi-automatic mode .
2. If necessary, move to the first sequence by means of the PgUp and PgDn keys.
3. Press the start key in order to position the axes on the first sequence.
4. Carry out the bend with a trial product.
5. Measure the flap and the obtained angle.
6. Touch the CORRECTIONS button and select **Corrections** in the list.

In the screen above, the correction of **-2.00 mm** corresponds to the material thickness when programming section 2 in Bend Numerical Page (Direct Programming), page 25.

7. If necessary, correct the flap (in this example, a correction of X = **- 0.10** is assumed) for the current bend.

8. Touch the **Angle** field, **Bend** column, and enter the measured angle (**93.0** in this case). The software automatically calculates the necessary correction (**-0.436**, which can be seen in the **Y1**, **Y2** fields, in the **Bend** column).

See also the ***Corrections*** section in the ***2D Reference Manual.***

9. Carry out a second test bend (on the same sequence, with a second test product). If necessary, make a new correction.

Depending on the material, the machine adjustment and the exactness of the data introduced, 2 or 3 corrections can be necessary for a bend. This can be considered as being a normal situation.

10. Proceed in the same manner for all the bends by navigating through the bends by means of the PgUp and PgDn keys.
11. When all the bends of the product turn out as expected, go into automatic mode and choose the work page you like:
    - Bend Numerical (see page 9),
    - Bend 2D Page (see page 22),
    - Bend 3D (see page 9) for 3D software.

Memorize or Search a Program

Memorize a Program

The memorizing of a product can be carried out from all pages containing the **Product** field at the top of the screen.

Setting Instructions:

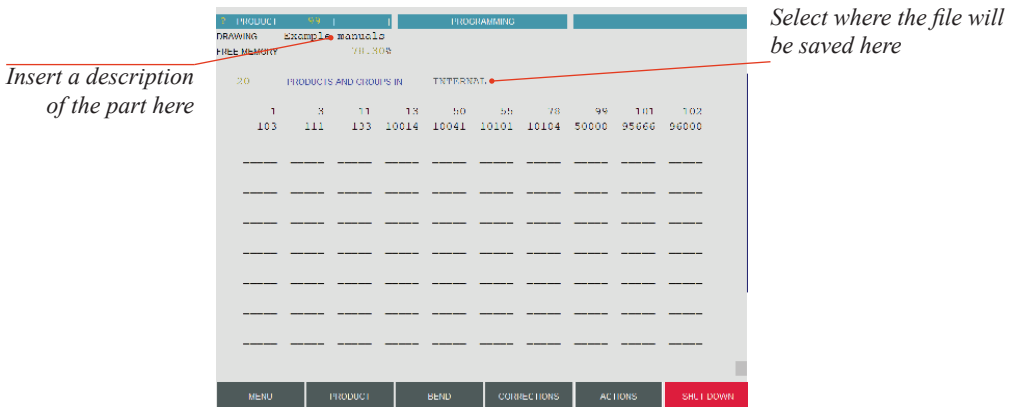
1. Set the ModEva in programming mode .
2. Enter a number in the **Product** field.
3. Touch the ACTIONS button and select **Memorize Product** in the list.
4. If the message **Exists** appears, it indicates that the number selected is already in use. Select:
   - **Cancel** to choose another number,
   - or **Confirm** to overwrite the existing product.

Selecting **Memorize product in file** allows giving the product an alphanumerical name, and also select its location.

From the List of Product page

If you wish to do this memorizing by having a global view of the existing products, it can be done from the List of Product page.

MENU → List of products



Setting Instructions:

1. In the **Drawing** field, introduce a reference, if needed.
2. If you want to memorize the product elsewhere than in the internal memory, touch the **Products and Groups In** field and make your choice.
3. Touch the **Product** field and introduce the storage number (1 to 89.999).
4. Touch the ACTIONS button and select **Memorize** in the list.
5. The message **Saving...** appears in the interactive field on the top right-hand corner of the screen.
6. The number of the product recorded will then appear in the list.

Search a Product

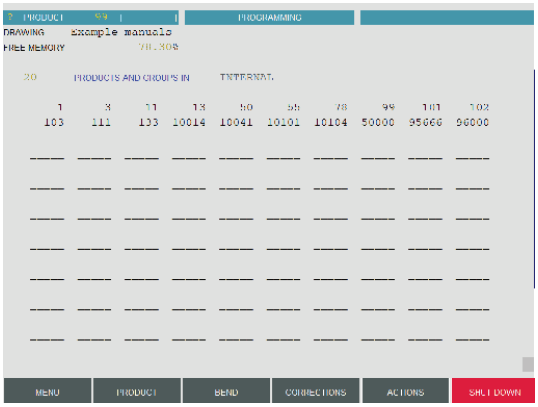
Standard Method

If you know the number of the product (provided that it is in the active peripheral), you can search for it from all pages displaying the **Product** field on the top left corner of the screen.

To this end:

1. Introduce the product number in the **Product** field.
2. Touch the ACTIONS button and select **Search Product** in the list.

If you don't know the product number, you can search for it in the list of products' page.



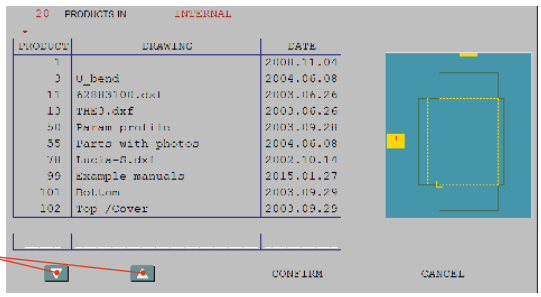
1. Touch the MENU button and select **List of Products** in the list.
2. If you want to search for the product in a location other than the internal memory, touch the **Products and Groups In** field and make your choice.
3. Simply touch the desired product and press the ↵ key.
4. The product is now in the work memory (its number is displayed in the **Product** field).

Rapid method

From any page displaying the **Product** field:

1. Touch the **Product** field and press the key.
2. The following window is displayed:

Use these arrows to browse through the available products

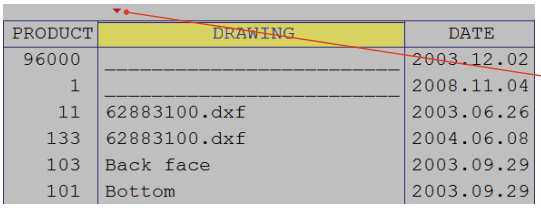


3. The products are initially listed in increasing order by product number.
4. Touch the product you want and select **Confirm** to load it.

Touching the product twice will also open it.

Sorting Products

Each column can be listed in an increasing or decreasing order by simply touching its title.

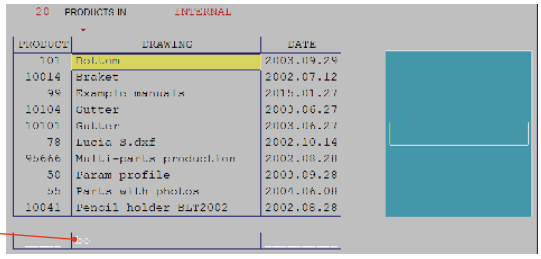


PRODUCT	DRAWING	DATE
96000	_____	2003.12.02
1	_____	2008.11.04
11	62883100.dxf	2003.06.26
133	62883100.dxf	2004.06.08
103	Back face	2003.09.29
101	Bottom	2003.09.29

The red arrow (▲ or ▼) indicates the sorting direction

Searching a product

Touch the table in the desired column and enter there the product number, the drawing name or the searched date.



PRODUCT	DRAWING	DATE
101	Bottom	2003.09.29
10014	Bracket	2002.07.12
99	Exemple manuels	2015.01.27
10104	Cutter	2003.06.27
10101	Guitar	2003.06.27
78	Lucia 3.dxf	2002.10.14
95666	Multi-parts production	2002.08.28
50	Param profile	2003.09.28
55	Parts with photos	2004.06.08
10041	Pencil holder BLT2002	2002.08.28

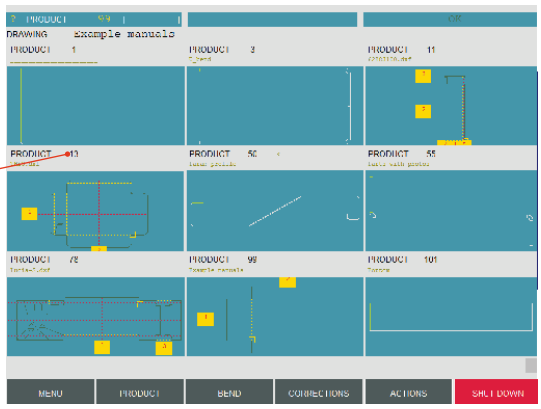
The search criteria you enter are displayed here

Your entry is displayed on the last line (in white), and the cursor positions itself on the first line of the table. The names are sorted in increasing order, the first corresponding to your entry being on the first line.

Graphic Method

Procedure:

1. Touch the MENU button and select GRAPHICAL LIST OF PRODUCTS in the list.
2. Use the PgUp and PgDn keys to scroll the list of graphical products.
3. Simply touch the desired product and press the ↵ key.
4. The product is now in the work memory (its number is displayed in the PRODUCT field).



Touch the product number and press ↵ to select it

Protection of Access Levels

General Information

In this manual we will always speak of a (virtual) key position like e.g.: «Key in position 3».

Levels

There are 4 access levels, 0 to 3.

- **0** = Programming prohibited, or identical to level 1, according to the configuration in the machine parameters.
- **1** = Creation, correction, modification, saving, deleting, transfer of one (or more) product(s).
- **2** = Creation, correction, modification, saving, deleting, transfer of the tools.
- **3** = Programming, modification and transfer of the machine parameters.

Access

These levels are reached by pressing the Alt + 0, Alt + 1, Alt + 2 or Alt + 3 keys.

The key position is displayed as a small pictograph at the right bottom of the screen.

When passing to non-authorized level, a password modification will be requested.

When the password has been introduced, you can «navigate» in the levels inferior and equal to the authorized one without reintroducing the password.

Release the numerical key before the Alt key. Switching to level 0 reinitializes the password request.

Password

Certain users can modify their own password. For the others, the password can only be changed by a user having a superior access.

Characteristics

The password can be composed of alphanumerical characters if such a keyboard is available and if not only of numerical characters.

Loss of the password

In case of loss of the password, a user with a superior level has to reprogram it.

Users

A number of different users is predefined. A predefined user is just a role and not a physical person in particular. It can be for example all the operators having the authorization to work on the machine.

Each predefined user possesses its own password and a maximum level which he can reach.

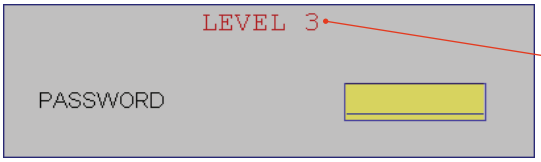
Level	Names of pre-defined users	Changing of the personal password	Changing of passwords of the subordinates	Level virtual key	Password by default	User generally attributed to
1	EUL1	NO	NO	1	111	Operators having level 1 access authorization
2	EUL2	NO	NO	2	222	Operators having level 2 access authorization
3	EUL3	NO	NO	3	333	Operators having level 3 access authorization
4	WSSUPER	OK	OK	3	817	Workshop supervisor
5	MACHMAN	NO	OK	3		Machine manufacturer's Service technicians
6	MACHMAN0	OK	OK	3		Responsible of the technicians at the machine manufacturer's

After installing the machine, it is advised to modify the level 4 (WSSUPER = Workshop supervisor) and level 3 (EUL3 = Operators with authorization level 3) default passwords, because they are in this manual.

Access by Password

At the software's startup, the virtual key is always positioned at 0.

When the operator selects one of the combinations Alt + 1, + 2 or + 3, the following message appears:



Or 1 or 2 according to the keys combination

Setting Instructions:

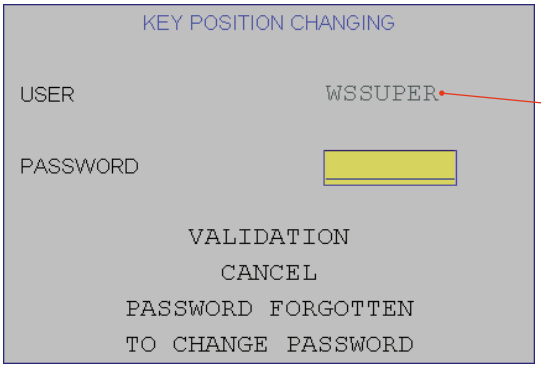
1. Enter the password.
2. Press ↵.
3. The authorized level is shown in a box at the bottom right of the screen.

If the password is not correct, the message **Wrong Password** is displayed, indicating that the user is not authorized.

Once the authorization granted, the level remains accessible as long as another password is not entered. Cybelec recommends accessing level 0 after your intervention, in order to avoid making undesired changes by inadvertence.

Access to Levels Superior to 3

Certain users can access levels superior to 3, which enables them, among other things, to modify the passwords. To do that, one must press the combination Alt + 4. The following message appears:



Touch here to select the desired user level

Setting Instructions:

1. Touch the **User** field and select the desired user level (see Users, page 33).
2. Touch the **Password** field, enter the password corresponding to the requested level and validate with the ↵.

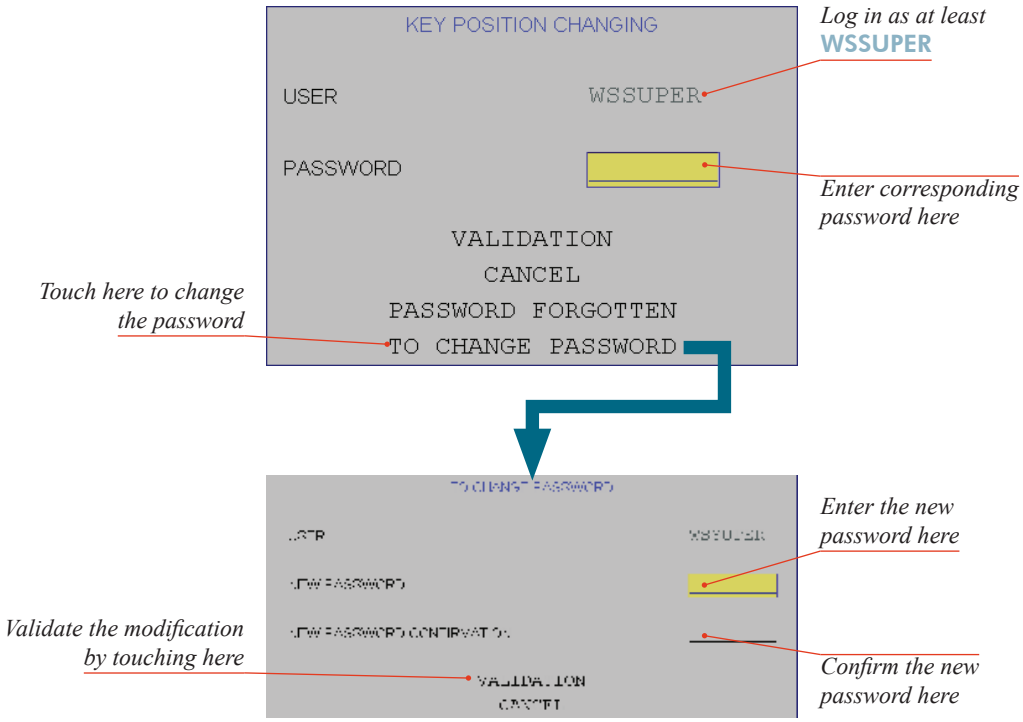
3. The ModEva switches to level 3. The operator can «navigate» between levels 1 and 3 without reintroducing his password.
4. If his access level enables him, he can call the procedure to Change Passwords.

At the end of the intervention, don't forget to pass to level 0 in order to leave the current level.

Change Passwords

It is possible to modify the passwords attributed by default. Certain users can do it for themselves, others not.

In order to know the authorizations, see the table in Users, page 33.



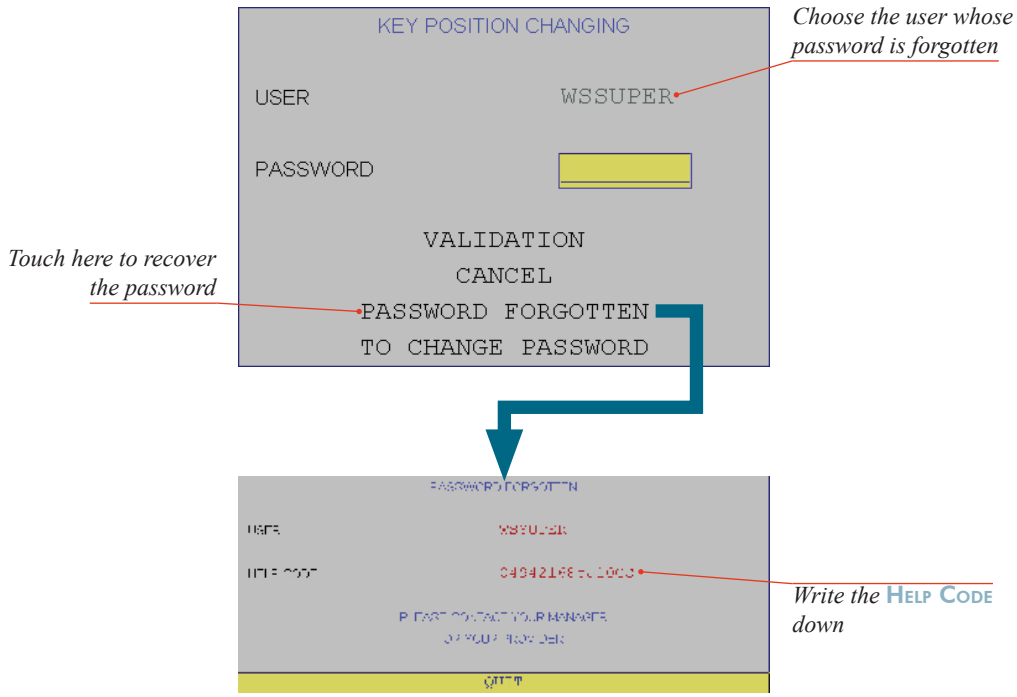
Forgotten Passwords

If a user has lost / forgotten his password, he can, if he is authorized, change it himself (see Change Passwords, page 35).

If he is not authorized to change his password himself, he can either:

- Ask a higher user to modify the password (see Change Passwords), or
- Use the method described below, after pressing the combination Alt + 4.

In order to know the authorizations, see the table in Users, page 33.



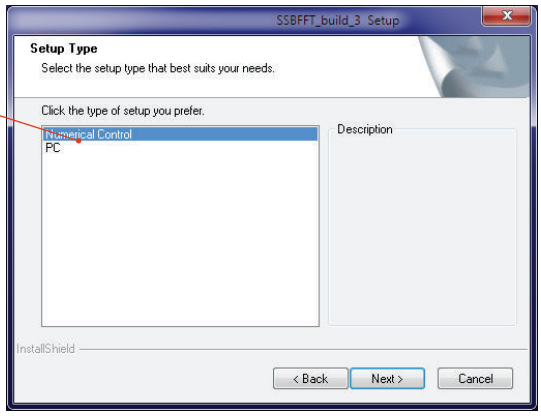
Contact your provider with the **Help Code** in order to recover the lost password.

Cybelec Software

Installing the Software

The software delivered with the ModEva can be installed on the numerical control itself of course, but also on a PC. When running the software's installation program, the choice is given in a window as shown below.

Select here the type of installation desired



Leaving the Software

MENU → Quit → Confirm

It is possible at any time to quit the task after having memorized the current state. However it is important to leave the software in the correct way by using the Quit function.

This procedure will close the PC-ModEva software and bring you to the Windows environment.

The same procedure can be used on the PC software, or press the F6 key twice on any page.

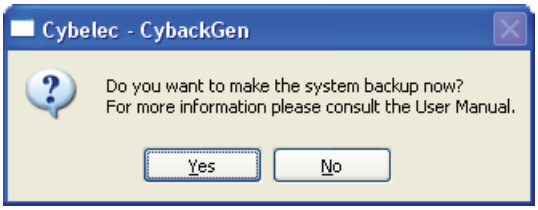
The Windows Operating System, like on every computer, is very sensitive to inappropriate shutdown. Make sure that you properly turn the system off, and NEVER by cutting the power off! This can destroy the CF card!

Backing the System up

For evident safety reasons, we highly recommend that you make a backup of your machine, at least once after the machine is properly installed and running on your premises.

Making a backup of the system

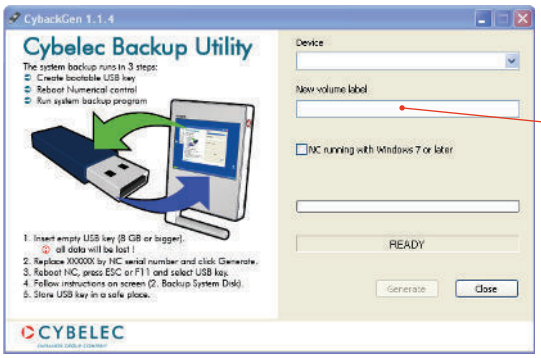
If your machine wasn't delivered with a backup memory key, the following pop-up window should appear once a week:



This pop-up windows will keep on appearing on a weekly basis until the backup has been made.

Setting Instructions:

1. In the pop-up window here above, touch Yes to launch Cybelec Backup Utility.

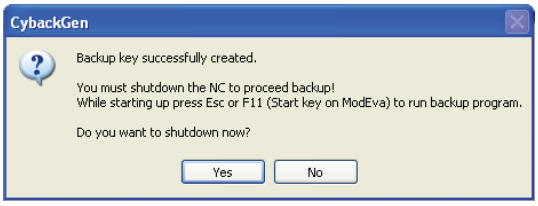


Enter the serial number of the NC here

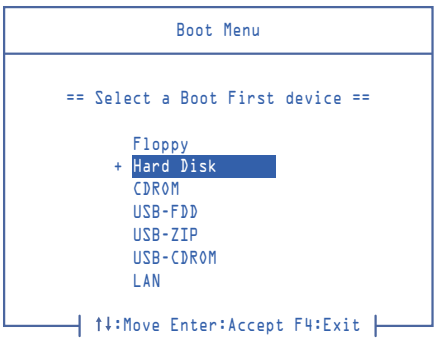
2. Insert a USB key (8 GB or bigger) into the numerical control.

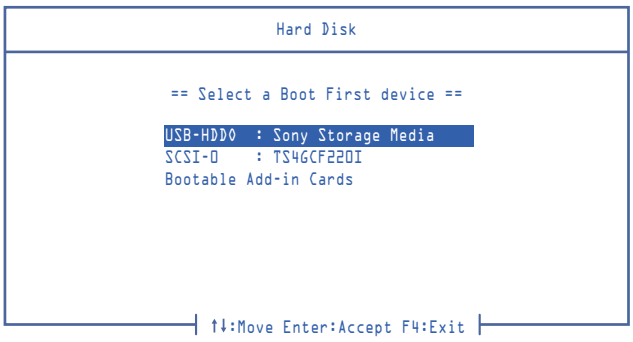
Use preferably a new and empty USB key, as the Cybelec Backup Utility will format it and erase all its content.

3. For easy identification, enter the serial number of the numerical control after **BK_** as the new volume's label.
4. Click on Generate to start creating the bootable USB key. At the end of the process, the following window is displayed:



5. Click on Yes to shut down the NC, and restart it.
6. While it is rebooting, press the Esc key until the Boot Menu is displayed.





7. Select Hard Disk, and then your USB key. The NC will boot and display the following menu:

```
*****************************************************
*                                                   *
*          CYBELEC S.A. / BACKUP DISK TOOL          *
*                                                   *
*             18-MAY-2016  Rev: 1.1.4               *
*                                                   *
*        Product under License, do not copy!        *
*                                                   *
*****************************************************

*****************************************************
*                                                   *
*       1.     LIST ARCHIVE FILE(S)                 *
*       2.     BACKUP SYSTEM DISK                   *
*       3.     RESTORE SYSTEM DISK                  *
*       0.[X]  EXIT - REBOOT PC                     *
*                                                   *
*****************************************************

PICK A KEY (1,2,3,0 or X)
```

8. Select option 2. BACKUP SYSTEM DISK. The backup operation starts.

```
*****************************************************
*                                                   *
*          DO NOT TURN OFF THE PC !!!               *
*             BACKUP IS RUNNING ...                 *
*                                                   *
*     NOTE: THE PC WILL AUTOMATICALLY REBOOT        *
*           AT COMPLETION OF THE BACKUP             *
*                                                   *
*****************************************************
```

9. Once the operation is complete, the NC will reboot and display the Welcome screen.
10. Remove the USB key, put a label on it for further identification, and store it in a safe place.

We recommend that the system be backed up at least once a year.

Restoring a backup of the system

The process to restore a backup of the system is very similar to creating the backup itself. Proceed as follows:

If the storage media (CF card) has to be replaced, make sure it is with the same model of the same manufacturer. If not possible, contact Cybelec to get an approved replacement.

Setting Instructions:

1. Turn the NC off.
2. Plug the backup USB key in the NC, turn it back on, and execute points 6 and 7 of the previous procedure.
3. Once in the following menu, select option `3. RESTORE SYSTEM DISK`.

```
*    .....                                          *
*                                                   *
*****************************************************

*****************************************************
*                                                   *
*      1.     LIST ARCHIVE FILE(S)                  *
*      2.     BACKUP SYSTEM DISK                    *
*      3.     RESTORE SYSTEM DISK                   *
*      0.[X]  EXIT - REBOOT PC                      *
*                                                   *
*****************************************************

PICK A KEY (1,2,3,0 or X)
```

4. Enter the name of the backup you want to restore.

```
*****************************************************
*                                                   *
*    ENTER THE NAME OF THE ARCHIVE FILE WITHOUT     *
*    THE SUFFIX BK AND EXTENSION (.TBI), THEN       *
*    PRESS ENTER OR JUST PRESS ENTER TO ABORT.      *
*                                                   *
*    NOTE: THE PC WILL AUTOMATICALLY REBOOT         *
*          AT COMPLETION OF THE RESTORE             *
*                                                   *
*****************************************************
AVAILABLE FILE(S) :
BK160425

ENTER A FILENAME (numbers only): BK_
```

The backup file are automatically named `BK` followed by the date they were created in the YYMMDD format.

5. The restore operation starts.

```
*****************************************************
*                                                   *
*          DO NOT TURN OFF THE PC !!!               *
*            RESTORE IS RUNNING ...                 *
*                                                   *
*****************************************************
```

6. The NC automatically reboots at the end of the process.