



Think Big, We Do.

USER GUIDES



Visipac

VisiPac

VisiTouch Series



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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 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 neighbourhood of magnetic equipment such as transformers, motors or devices which generate interference (welding machines, etc.)

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 VISIPAC & VISITOUCH

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



This manual describes all features of

- VisiTouch19_Press_PS_PC_V2.0 and above.



Touchscreens are pressure sensitive.

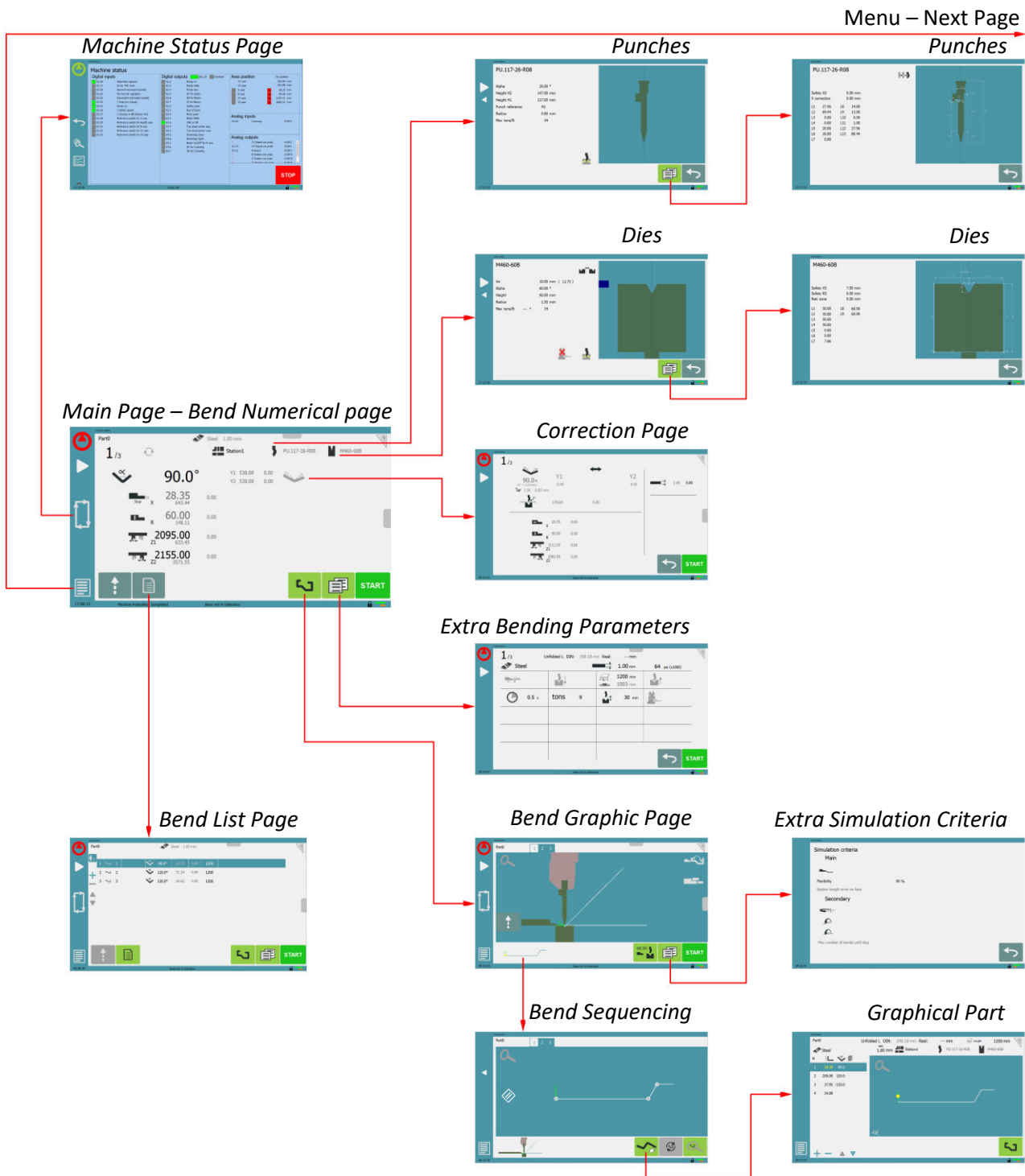
Do not press down hard on the screen.

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

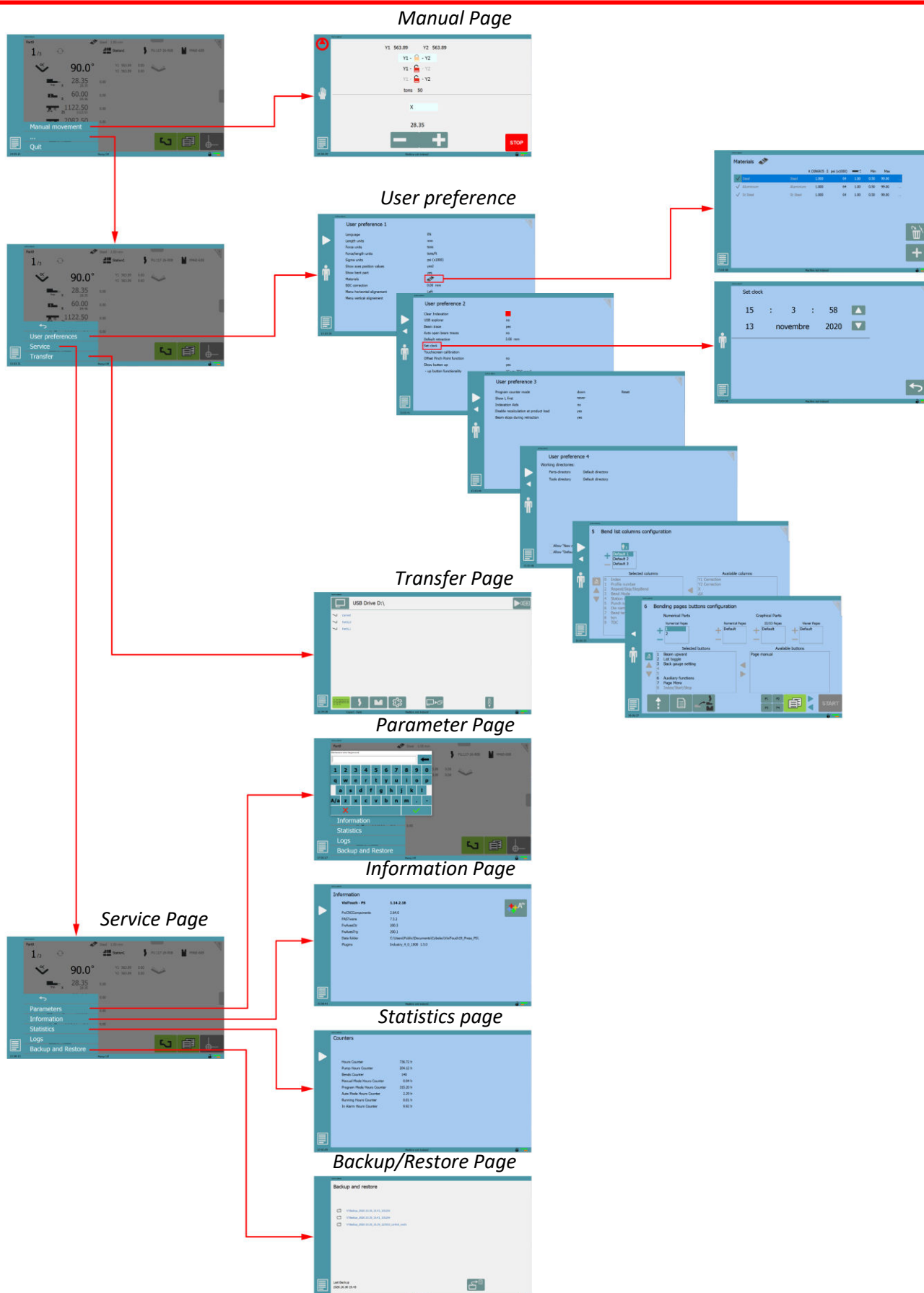
Do not use sharp and/or pointed objects (sheet metal, screwdriver, metal pen ball, etc.) to touch the screen; only use your fingers (with or without gloves on) or a plastic pen. Make sure that your gloves do not have metal particles encrusted in the fingertips as they may also damage the screen.

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.

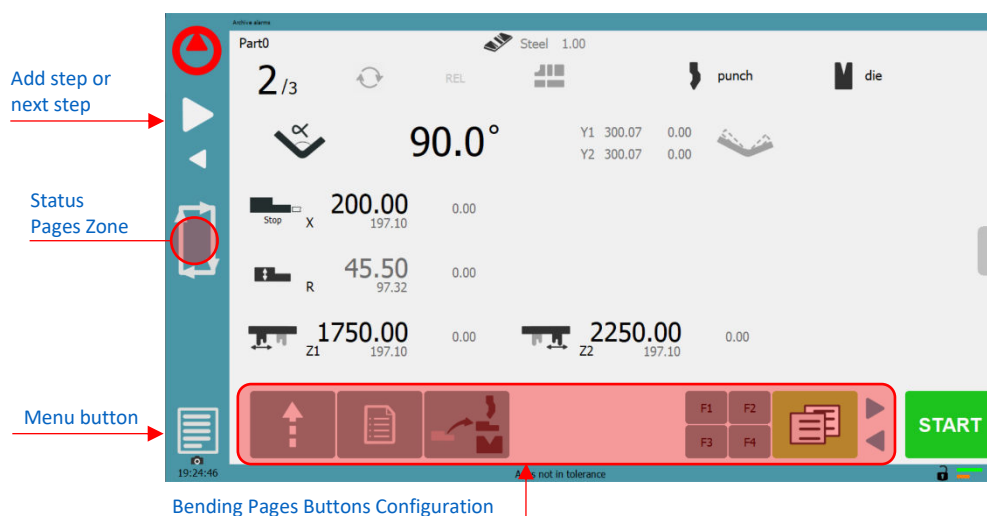
SCREEN MAP



SCREEN MAP (CONTINUED)

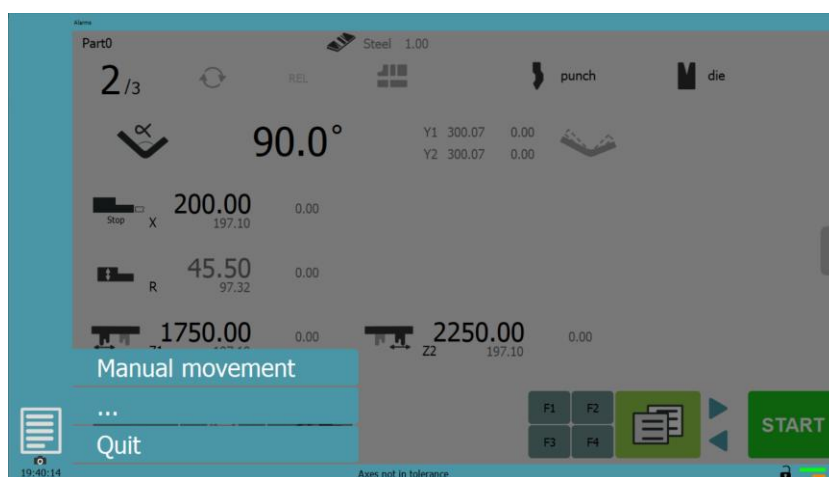


GENERAL NAVIGATION



Menu Button

The Menu button  allows you to directly select (jump to) the desired screen. The content of the menu changes contextually.



Status Page Zone

Briefly touching the Status pages zone gives access to the [Status page](#). This is really a zone that is active at any moment from any page.



Touching this zone for more than 2 seconds will activate the [Semi-Automatic mode](#).

Screen Cleaning

To clean the screen while the VisiTouch is on, touch the  button. Use only a damp and smooth cloth with soap or a neutral detergent.



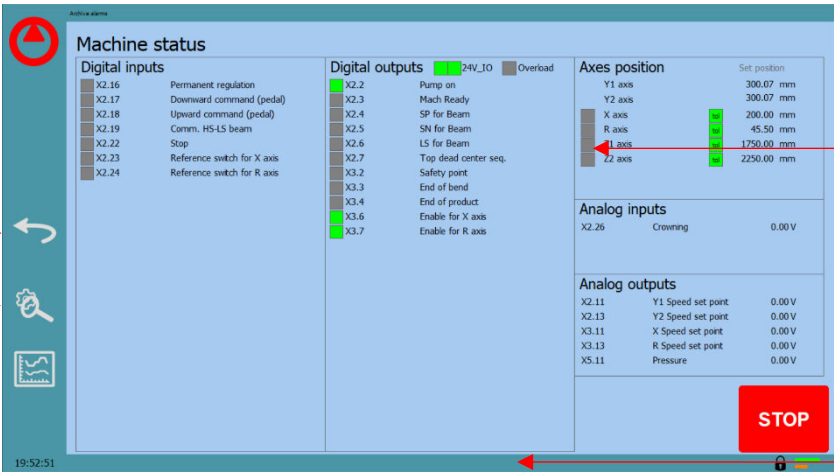
NEVER use solvent, petrol, benzene, alcohols, etc.

STATUS PAGE

The Status page shows the status of all inputs and outputs and axes positions of the NC. This feature is very useful during setup or during phone service with a machine installed in the field.

This page is accessed from anywhere by pressing the [Status Pages Zone](#).

To exit the Status page, press on the arrow on the left.



The screenshot shows the 'Machine status' page with the following sections:

- Digital inputs:** X2.16 Permanent regulation, X2.17 Downward command (pedal), X2.18 Upward command (pedal), X2.19 Carren, HS-LS beam, X2.22 Stop, X2.23 Reference switch for X axis, X2.24 Reference switch for R axis.
- Digital outputs:** X2.2 Pump on, X2.3 Mach Ready, X2.4 SP for Beam, X2.5 SN for Beam, X2.6 LS for Beam, X2.7 Top dead center seq., X3.2 Safety point, X3.3 End of bend, X3.4 End of product, X3.6 Enable for X axis, X3.7 Enable for R axis.
- 24V_10** and **Overload** indicators.
- Axes position:** Y1 axis 300.07 mm, Y2 axis 300.07 mm, X axis 200.00 mm, R axis 45.50 mm, L axis 1750.00 mm, Z axis 2250.00 mm.
- Analog inputs:** X2.26 Crowning 0.00 V.
- Analog outputs:** X2.11 Y1 Speed set point 0.00 V, X2.13 Y2 Speed set point 0.00 V, X3.11 X Speed set point 0.00 V, X3.13 R Speed set point 0.00 V, X5.11 Pressure 0.00 V.
- STOP** button.

Annotations on the screenshot:

- Press arrow to exit Status Page:** Points to a red circular arrow icon in the top left corner.
- Statistic Page Button:** Points to a magnifying glass icon in the left sidebar.
- Beam trace Button:** Points to a waveform icon in the left sidebar.
- Axis status indicator:** Points to a red arrow icon next to the 'L axis' position value.
- A cycle message may appear indicating the cycle phase the machine is executing:** Points to a red box at the bottom right of the page.

Axes have specific indicators. Their colour indicates the position of the axis relative to the tolerance.

Possible states are:

-  : Device not active and in the tolerance.
-  : Device moving.
-  : Device not active and outside of the tolerance.

USER PREFERENCES



(Menu Button) → ... → User preference



To exit the User Preference page, touch the  button.

Language

To browse through the available languages, simply touch **Language** on the screen. Available languages are:

- **EN** English.
- **BR** Brazil.
- **CN** 中文.
- **CZ** Český.
- **DE** Deutsch.
- **ES** Español.
- **FI** Suomi.
- **FR** Français.
- **IT** Italiano.
- **NL** Nederlands.
- **PL** Polski.
- **PT** Português.
- **RU** Русский.
- **SL** Slovensko.
- **SV** Svenska
- **TR** Türkçe.
- **TW** 台灣.

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

Length Units

This parameter allows choosing between **mm**, **inch** and **none** for the length unit to be used in the VisiTouch.

When **none** is selected, the units used are millimetres.

Force Units

This parameter allows choosing between **ton**, **kN** and **tons** for the force unit to be used in the VisiTouch.

Force / Length Units

This parameter allows choosing between **ton/m**, **kN/m** and **tons/ft** for the force/length unit to be used in the VisiTouch.

Sigma Units

This parameter allows choosing between **kg/mm2**, **N/mm2** and **psi (*1000)** for the sigma unit to be used in the VisiTouch.

Show axes position values

This function will display the axes positions on the [Bend Numerical Page](#).

- When set to **no**, the position of axes Y1, X and R is displayed during the beam's movements.
- When set to **yes1**, the positions of the axes (Y1, Y2, X and R) are displayed during their respective movements.
- When set to **yes2**, the positions of the axes (Y1, Y2, X and R) are constantly displayed under their respective set-point values.

Show bent part

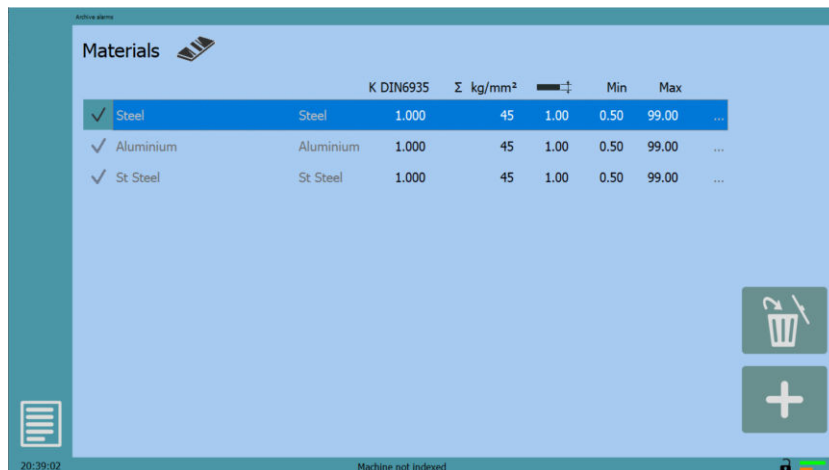
This parameter, when activated, lets the operator see the state of the part before and after the bend in the [Bend Sequencing](#) page.

Materials

Touching **Materials** opens the Materials page, where the default characteristics for each material can be changed, or a new material can be configured.



To be allowed to access the Materials page, a level 2 password is required.



The Materials page displays:

- **Material:** Selected material (here **Steel**).
- **K Factor** for the material (by default DIN6935).
- **Default sigma:** Default sigma for the material (here **45**).
- **Default thickness** for the material.
- **Thickness min/max:** Determines the maximum and minimum accepted thickness for the selected material.
- Three predefined default materials are available (steel, stainless steel, aluminium), but others can be added

To add a material:

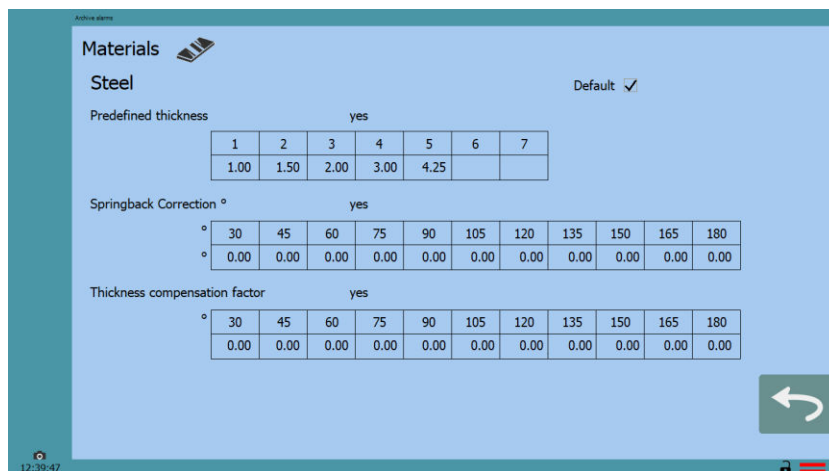
1. Touch and write the name of the new material.
2. Enter the new material's characteristics.



To remove a material:

1. Select the material you want remove.
2. Touch and confirm the suppression of the material.

By Pressing  in the selected material is possible to set custom configuration



Materials 

Steel Default ☒

Predefined thickness yes

1	2	3	4	5	6	7
1.00	1.50	2.00	3.00	4.25		

Springback Correction ° yes

30	45	60	75	90	105	120	135	150	165	180
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Thickness compensation factor yes

30	45	60	75	90	105	120	135	150	165	180
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

12:59:47 

The Custom configuration page displays:

- **Predefined Thickness:** If activated is possible to set predefined thickness for the material.
- **Springback Correction** If activated is possible to set corrections of the springback effect of the material for different angles degrees.
- **Thickness compensation factor:** If activated is possible to set corrections of the thickness effect of the material for different angles degrees.

BDC Correction

This parameter allows the operator to apply a permanent correction to the Bottom Dead Centre position.



Please note that this correction is always applied and is NOT shown in the correction page. If you experience big differences from what you expect to get, maybe check the value of this parameter.

Menu horizontal alignment

This parameter allows the operator to choose on which side – **Left** of **Right** – he prefers to have the side bar containing the **Menu Button** .

Menu vertical alignment

This parameter allows the operator to choose if he prefers to have the menu displayed at the **Bottom** or at the **Top** of the screen when he presses the **Menu Button** .

Clear indexation

When activated, this function clears the index and the machine will search for them, as it does when turning the power on, allowing the operator to re-index its machine without turning it off.

USB Explorer

When this parameter is set to **yes**, it is possible to browse the USB key from the USB transfer screen (see [USB Transfer](#)).

A USB key must be inserted.



Preferably use a specific USB key for transferring parts and VisiTouch Data instead to use a generic memory stick full of data programs that are not relevant for the numerical control.

Beam trace

When this parameter is set to **yes**, this small button  is displayed on the [Status page](#). By activating/deactivating it, one can start and stop the recording of beam traces.

Auto open beam trace

When activated, this function will open the beam trace screen automatically at the end of the recording.

Default retraction

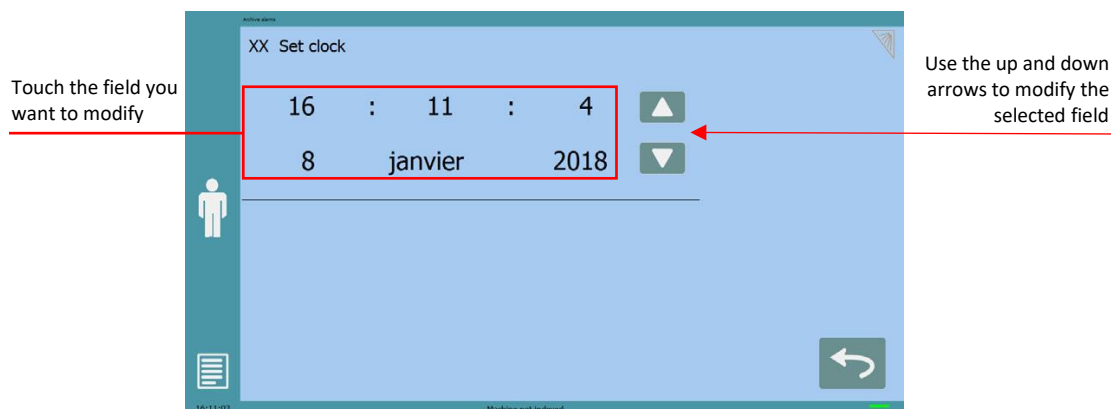
This parameter allows defining the default value displayed in the [Extra Bending Parameters](#) when activating the back-gauge retraction function.



In [TouchProfile Mode](#), when a retraction is necessary, the numerical control will automatically calculate and activate the function. The calculated value can naturally be manually modified.

Set Clock

Allows the user to set the time and date on the VisiTouch.



Touchscreen Calibration

This function allows the calibration of the touch screen.



SETTING INSTRUCTIONS:

Simply follow the instructions on the page to calibrate the touchscreen.



Use your finger or the plastic tip of a pen to calibrate the Touchscreen. Never use sharp objects as this will damage the screen.

Offset Pinch Point function

When this parameter is set to **yes**, the **Offset Pinch Point** function is available in the **Extra Bending Parameters**.

Show button up

When this parameter is set to **yes**, the button up  is available when the beam is not at TDC.

Upward command
Go to TDC max
Go to next TDC

The beam goes up as long as the button is pressed.
 The beam goes to TDC max
 The beam goes to the next TDC. (first to programmed TDC, then to the TDC max)

Program counter mode

This parameter set the counting mode of the program quantity.

- Set to **down**, The counter will count from top to bottom
- Set to **up**, The counter will count from bottom to top
- Set to **Autoreload**, The counter will automatically restart the counter once finish
- Set to **Reset**, The counter will need to be reset manually once finish

Show L first

This function allows choosing the data entry mode for the back gauge on the **Bend Numerical Page** or **EasyBend Page**. When set to **yes**, the length of the flange icon  is displayed by default. When set to no, the icon for the position in mm of the back gauge  is displayed.

When set to **never**, the position of the back gauge is no longer linked to the bending angle, i.e. the position is never recalculated when the bending angle is modified.



The default value for this preference is **never**. Note that completely formatting the machine will reset this preference to its default value.

The  mode is not available for graphical parts (see also **Set point back gauge (X axis) / flange length**).

Indexation Aids

This function allows choosing help during the indexation of the beam.

When this parameter is set to **yes**, during the Indexation of the beam, if the Index have not been found, a pop-up with the instruction will appear and an interactive instruction will tell to the operator the procedure to correctly Index the machine.

i.e. If the beam is not indexed and its actual position is upper than the Index.

The beam hasn't been indexed properly

Please press the pedal until the beam stops.



Disable recalculation at product load

When this parameter is set to **yes**, when a product is loaded from the library, or a modification has been made in the part, it will not recalculate the axes and beam position.

Beam stop during retraction

When this parameter is set to **yes**, the down movement of the beam is stopped and the beam is maintained in closed loop at pinch point during the retraction. The beam cycle will resume as soon as the back gauge has finished its retraction.

Working directories

This function allows choosing file destination for Parts and tools

By default the directories are in the VisiTouch folder.

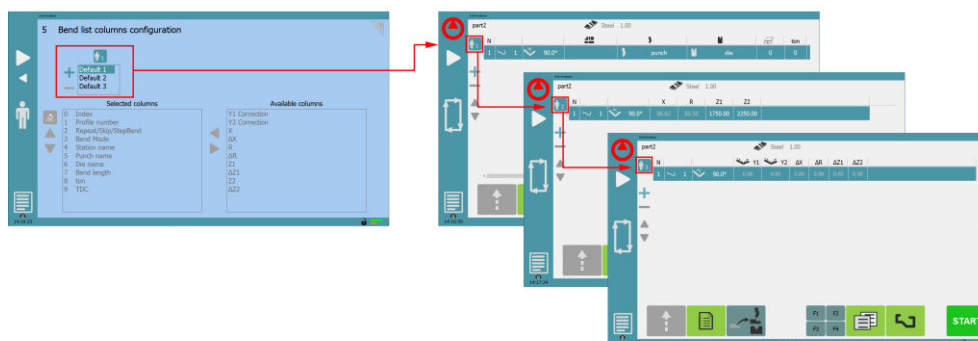
When set to **New directory** it is possible to choose another folder destination i.e. if the Numerical Control is related to the enterprise network it is possible to share parts and tools files from the same source.

Bend list columns configuration

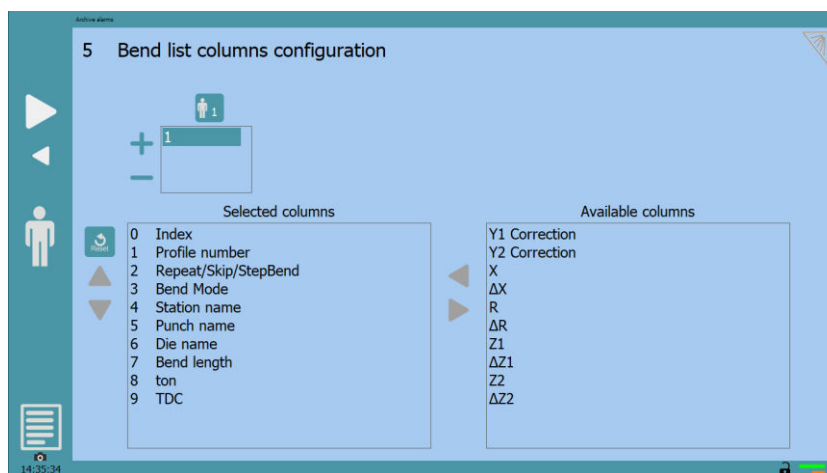
This page allow customisation of the columns in page Bend list.
 By default 3 pages are available.

Selected columns
Available columns

Visible information
 Objects that can be add in the list



Customisation of a bend list page:



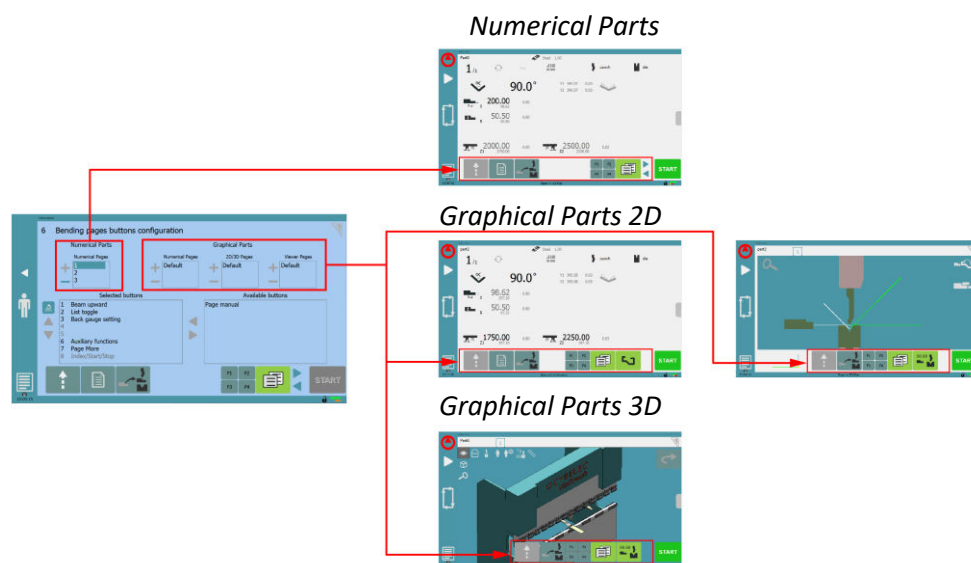
- Press the Button  for create a new custom page.
- Through the arrows buttons  move the object from the available objects **Available columns** to the visible information **Selected columns** or in the opposite way to remove.
- Through the arrows buttons  is possible to choose the order of the selected columns.

- 

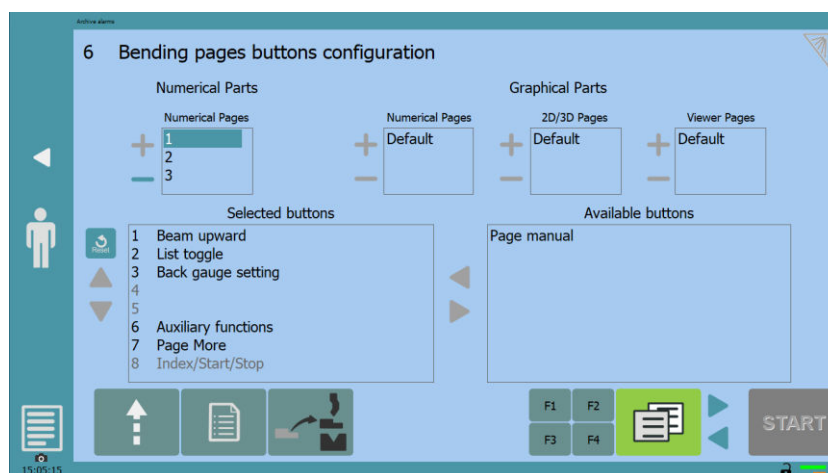


Bending pages buttons configuration

This page allow customisation of the bending pages buttons.



Customisation of Bending pages buttons:



- Press the Button  For **Numerical Parts** or **Graphical Parts** and create a new custom page.
- Through the arrows buttons  move the buttons from the list **Available buttons** to the visible information **Selected buttons** or in the opposite way to remove.
- Through the arrows buttons  is possible to choose the position of the selected buttons.

MANUAL AXES MOVEMENT

In the course of setting up a machine, it is sometimes necessary to be able to move the axes manually, for example when changing the tooling. This can be done on this page.

(Menu Button) → Manual movement

Move beam up (button hidden if movement not allowed)

Menu button

Set here the bending force that will be applied to the manual movement

Drop down menu with the list of available axis

SETTING INSTRUCTIONS:

1. Select the axis that you want to move:
 - by selecting the desired axis from the drop down menu.
 - by selecting this icon  for the crowning axis.
 -  or  for the tool clamping devices (if available).
2. Touch the  buttons to move the selected axis.
3. Use the foot switch (Low Speed Down movement) and this button  (High Speed Up) to move the beam.

Desynchronized Beam

By selecting a line where the padlock is open , it is possible to select and move (Low Speed Down movement) Y1 or Y2 only. This is an easy way to return an unsynchronized beam back to parallel to the table.

Linked axis

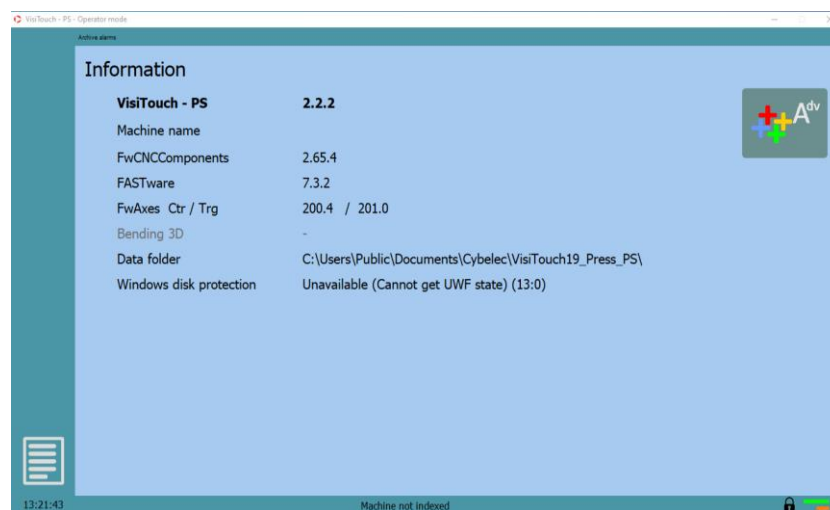
Depending on the configuration of the machine, a padlock can be displayed next to the axes selected. This means that the movements of these axes are interlocked. In a similar fashion as here above, when the padlock is open , it is possible to select and move a single axis.

INFORMATION PAGE

The Information page displays the names and versions of the software installed on the VisiTouch.



 (Menu Button) → ... → Service → Information

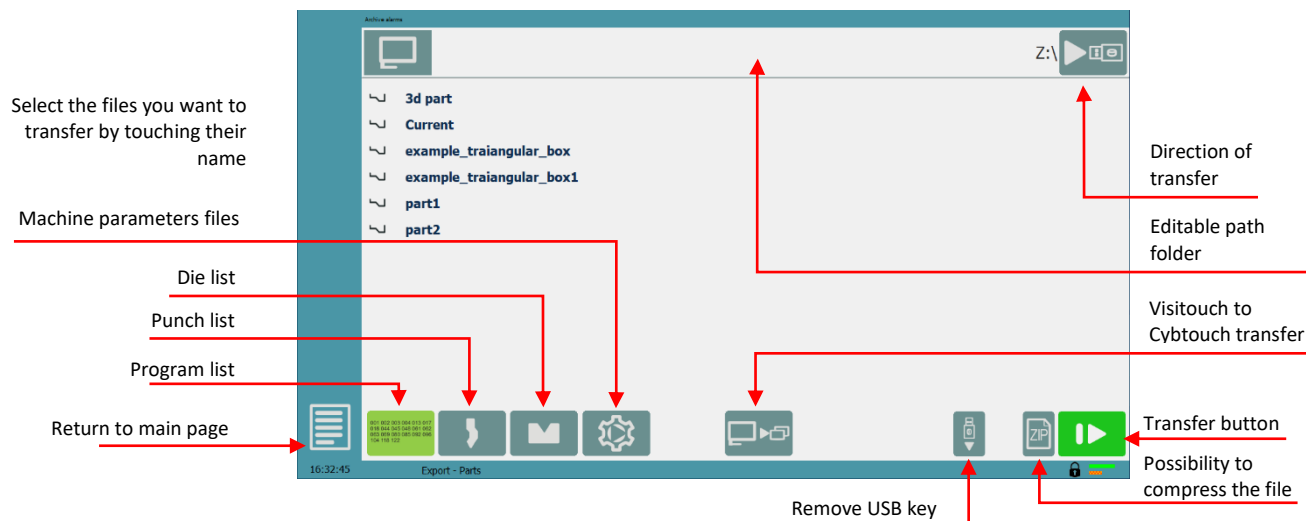


USB TRANSFER



 (Menu Button) → ... → USB transfer

This function opens the USB transfer screen, which allows the operator to transfer data between the VisiTouch and a USB key.



Copying parameters from USB to NC requests a level 3 password or, for end- users, the restore password.

Precautions

For a smooth transfer, please take the following precautions into consideration:

- The USB port of the VisiTouch is meant to be used only with a storage media of the "Memory stick" type.
- The port is a standard USB 2.0 port, USB 1.1 compatible.
- USB 3.0 key that are USB 2.0 compatible, should normally work. There's however no guarantee, as it depends of the firmware of these new keys.
- CD and external HDD are not accepted.
- Although unlikely, it is possible to find a USB key that is not compatible with the VisiTouch. If so, try with another one.

3 rules for a fast and easy transfer:



- Use a USB key dedicated to files transfer with the VisiTouch.
- Less files means a faster transfer.
- The file's path on the key is limited to 255 characters.

Importing parts from PC program

PC VisiTouch is the offline software which has the same features as the controller. It is possible to transfer parts or tools from one to another.



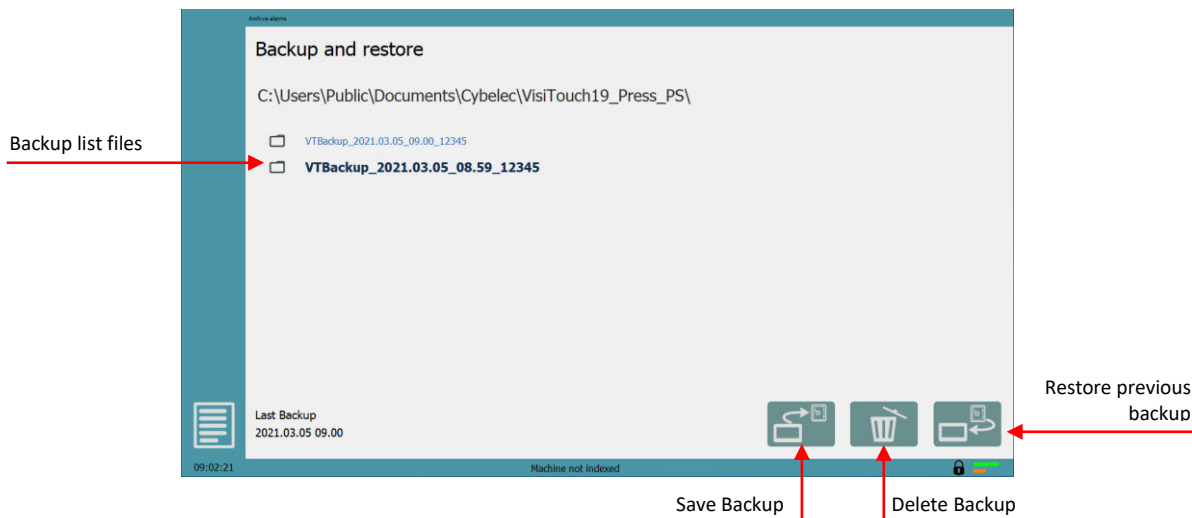
PC VisiTouch is available as an option, please contact the machine manufacturer if you would like to purchase it.

BACKUP AND RESTORE



 (Menu Button) → ... → Service → Backup and Restore

This function opens Backup and Restore screen, which allows the operator to backup or restore all the configuration machine.



We suggest to make a Backup of all parameters to avoid complete data loss.

Backup

1. Press  to make a backup of the system

Restore

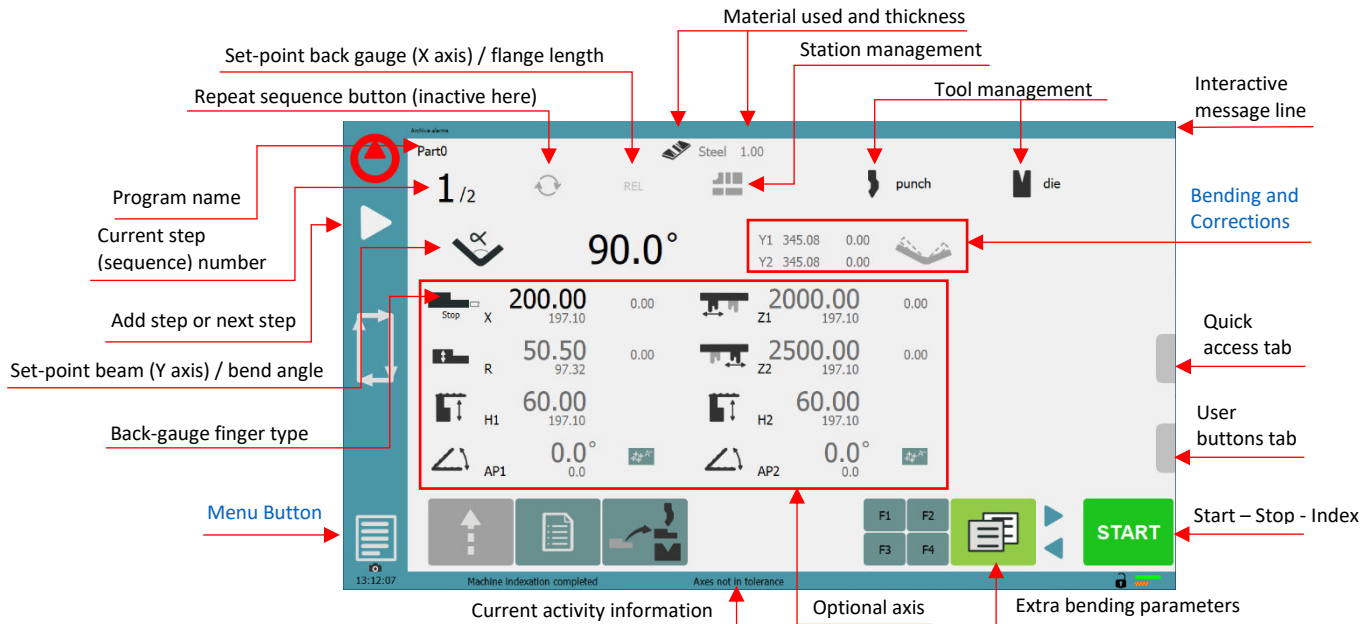
1. Select from the Backup list files the Backup you want restore
2. Press  to make a restore from a previous backup

Delete Backup

1. Select from the Backup list files the Backup you want remove
2. Press  to delete the Backup

BASIC PAGE DESCRIPTION

BEND NUMERICAL PAGE



Available functions on the Bend Num page

The Bend Numerical Page is normally the working page, from which the bends are executed, and most of the navigation originates from and leads to.

Program name

Part0

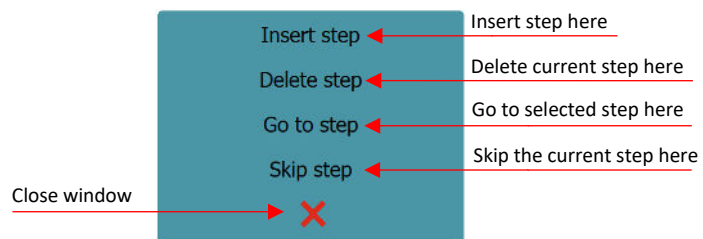
Touching the program name allows creating a new one, saving it and more. See [Managing Programs](#) for more information.

Current step (sequence) number

2/3

Touching the step number will open a pop-up window as shown here, with 3 different actions to choose from:

- **Insert step**: this function will insert a step after the current one.
- **Delete step**: this function will erase the current step.
- **Go to step**: this function allows jumping directly to the desired step.
- **Skip step**: this function will skip the current bend



The **Insert step** and **Delete step** functions cannot be used on parts created with the **TouchProfile Mode**.



Set-point beam (Y axis) / bend angle

The VisiTouch has four different modes to manage the Y axis. Touching one of the icons on the left allows going from one mode to another. The three modes are:



In this mode, the operator simply enters the desired angle and the VisiTouch will calculate the position at which the beam will stop (BDC).



In this mode, the operator can see the calculated target of the angle. It is possible to change the value.



This is the bottoming mode. When the beam stops, or when the target value is reached, the bending cycle continues (dwell time, return). When activated, the calculated bottoming value is displayed in grey. It is however possible to modify this value, which will then be displayed in black. It can only be used if both the tools accept bottoming (see [Punches](#) and [Dies](#)).



In this mode, the beam will not move. When selected only the electrical axes will move to the target position.



Set-point back gauge (X axis) / flange length

The VisiTouch has two different modes to manage the back-gauge X axis. Touching one of the icons on the left allows going from one mode to another. The two modes are:



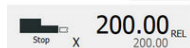
This mode is only available when programming a part with the [Numerical Mode](#). The position of the Back gauges are by default the external length of the flange. In [TouchProfile Mode](#), the operator simply enters the desired length for the flange and the VisiTouch will calculate the position for the back gauge X axis.



In [Numerical Mode](#), when deactivated, the operator enters the targeted position for the back gauge X axis in absolute where "zero" is the middle of the tools.



This is the relative mode. The back gauge makes a relative movement of the value entered. When the value entered is negative, the back gauge moves in the operator's direction.

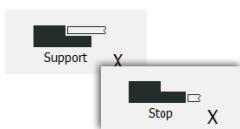


The relative mode is activated/deactivated by pressing the text icon. Relative movement is not possible on the first sequence (neither on Easy Bend) or on graphical parts.



User Preference [Show L first](#) allows choosing which mode is displayed by default first.

Back-gauge finger type



The back gauge dimensions are defined in the machine parameters. This function allows browsing through the available support and stop positions of the back gauge. This function may be available, or not, according to the machine configuration.

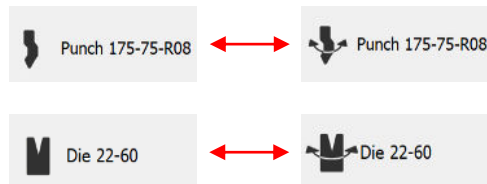
Tool management

Tools management allows the creation and configuration on the VisiTouch of the tools to be used on the machine. These tools are then considered in bend calculations.

See [Tool Management](#) chapter.



From the [Bend Numerical Page](#) is possible to reverse or not the Punch or the Die by pressing in the tool for at least 2 seconds.



Optional axes

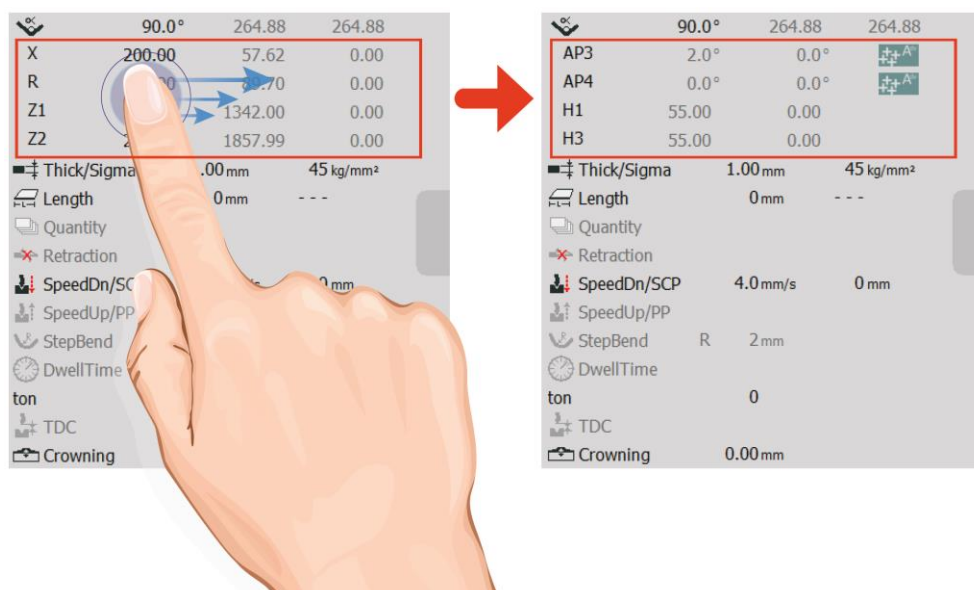
All the various optional axes of the machine are displayed in this zone. Their respective values are calculated by the VisiTouch and are displayed in gray. They can however be manually modified but are then displayed in black.



To restore the calculated value, simply press reset  .

Quick access tab

Contains various settings for the current bend such as axes positions and bending parameters. If the machine has multiple axes, it's possible to slide on the display in order to show the other axes.

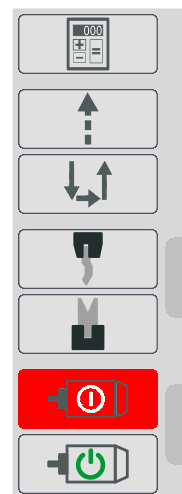


User button tab

Contains various buttons depending on the configuration for machine functions such as tool clamping, pump activation or upward command.



The user buttons tab will only appear if configured by the machine manufacturer.



Extra Bending Parameters

Extra bending parameters can be found on this page, which displays parameters related to the part, and depending on the VisiTouch configuration and the type of action performed, also displays various settings for the current bend. Most of these parameters can also be found in the [Quick access tab](#).

Material



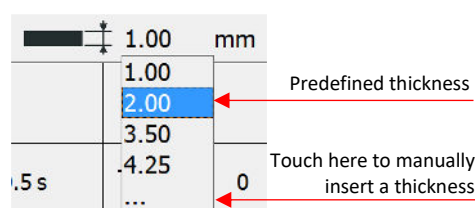
This is not a sequence parameter, but of course a part parameter. Each touch on the material's name selects the next available from the list of [Materials](#).

Material thickness



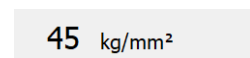
The default thickness, defined in [Materials](#), is automatically displayed when changing material. It is however possible to change it simply by touching this icon.

If on the other hand, the parameter [Predefined thic kn.](#) is set to [yes](#), a touch on this icon will open a numerical pad as show to the right, where the operator will be able to select directly one of the predefined thicknesses.



This is a part parameter.

Material sigma



The default sigma, defined in [Materials](#), is automatically displayed when changing material. It is however possible to change it simply by touching this icon. This is also of course a part parameter.

Back gauge retraction



The back-gauge retraction can be activated/deactivated at its [Default retraction](#) value using this icon. It is possible to modify the value by touching it. This is a sequence parameter, meaning it can be modified with each step of the program.

Speed change threshold and bending speed



The distance parameter allows the operator to increase the height of the speed change point. The speed parameter allows decreasing the bending speed from its maximum value defined in the machine parameters.

Bending length / Position offset



This parameter  defines the width of the sheet metal part that will be pinched between the tools. It is used to calculate the bending force.

If this parameter is not activated (grey), the VisiTouch will not calculate the bending Force and the Crowning.

This parameter  defines the position of the sheet metal in the machine.

Step bending

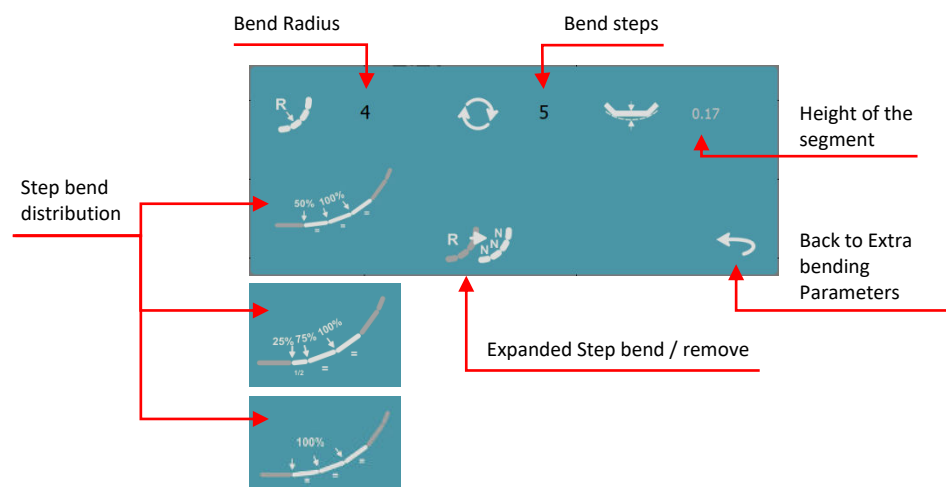


When a large radius bend has been programmed (see [L-Alpha Mode](#)), its parameters are displayed here. It is possible to modify them directly here.

Programming 99 x 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.

The large radius bending function is deactivated when this field is greyed.

When the command advanced  is pressed, a window will appear and it's possible to set up the Step bending with more criteria.



Slow speed return



This parameter allows slowing down the speed of the beam after the bend and is generally used when the part has a long flange and the operator tries not to let it “fall down too fast”.

The beam will return at low speed up while the operator holds the foot pedal. It switches to high speed up when either the pedal is released or Pinch Point is reached, whichever comes first.

When this field is deactivated (greyed), the beam moves back up directly at HSU (High Speed Up).

Dwell time



Allows defining the duration of the dwell time, meaning the time during which the punch remains at BDC before coming back up.

When the icon is crossed , it means that there is no automatic return of the beam after TDC. This is a sequence parameter, meaning it can be modified with each step of the program.

When this field is deactivated (greyed), the default Dwell Time value defined in the machine parameters are applied.

Force

Ton 0

modified here.

The force is automatically calculated by the VisiTouch, according to the [Material](#), the Material thickness, the Material sigma and the Bending length / Position offset. The value can also be manually

Opening (TDC)

 30 mm

For parts created with a profile (see [TouchProfile Mode](#) or [L-Alpha Mode](#)), this value is automatically calculated to allow the operator enough room to extract its bent part from between the tools. It is however possible to change it manually.

For part created manually (see [Numerical Mode](#)), this parameter uses the default minimum value defined in the machine parameters. It can however be programmed here. Creating a “New part” reinitializes it to its default value.

When this field is deactivated (grayed), the beam moves back all the way up to its maximum limit switch.

Crowning

 0.01 mm

The crowning function is activated here. It is automatically calculated, according to the [Material](#), the Material thickness, the Material sigma and the Bending length / Position offset. If the crowning needs correction, use the Crowning (see page 39) function in the correction page.

The value can be manually changed by operator. It will however be automatically recalculated if any of the values used for its calculation is changed.

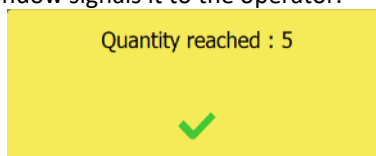


When the crowning function is deactivated (grey icon), the crowning system physically remains to its last position and does not automatically return to 0.0 mm. Keep that in mind when using this function – or not – between one sequence and the following.

Number of parts

 3 / 5

The operator can enter here the total amount of parts to be produced. Every time all the sequences of the program are executed, hence a part is completed, this counter is updated of one unit (increased or decreased, see [Program counter mode](#)). When the amount of parts is reached, a yellow pop-up window signals it to the operator.



Quantity

 4

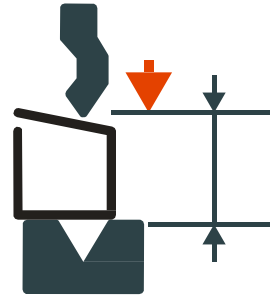
The quantity is used for count the number of Part, bend or Part + bend. If function active, is possible to see and modify the number of bend from the extra bending parameters page.

Back gauge manual control

Activating this parameter 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.

Offset Pinch Point

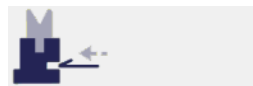
This function allows making a bending cycle further away from the matrix, for example to close the opened side of a box, as shown on the right.



Once activated, this function forces the VisiTouch into bottoming mode (see Set-point beam (Y axis) / bend angle, page 21).

With this function, the Speed Change Point occurs higher, and the operator can inch the beam down with short impulses on the pedal, until the proper height is reached. The parameters Speed change threshold and bending speed can also be useful in this situation.

Proceeding this way is normally used for unit or small series. If, however the number of parts is large, the operator can enter a target value in the bottoming field, which will then turn black. This way, the VisiTouch will execute a normal bending cycle, stopping the beam at the programmed value, i.e. saving a lot of production time.

Hemming

Allows making conventional die hemming bends (optional).

Once function is active, two bend are generated by the Numerical

control, first bend is a pre-bend  by default at 30° and the second bend is a bottoming 

Pre-Bend

This function allows making Pre-bend.

First bend is a pre-bend by default 135° and the second bend is the final bend angle by default at 90°. All angles can be programmed.

This function can help the operator to avoid collisions with the structure of the machine during part bending process.



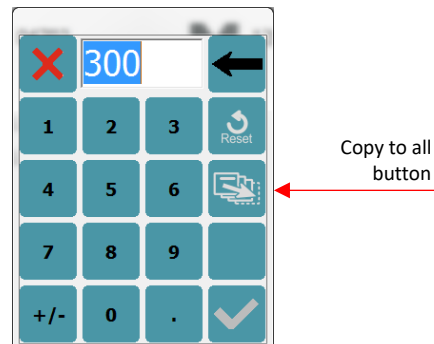
Bend sequencing can show the warning:

INFORMATION : [IA-70.40] Solution not found

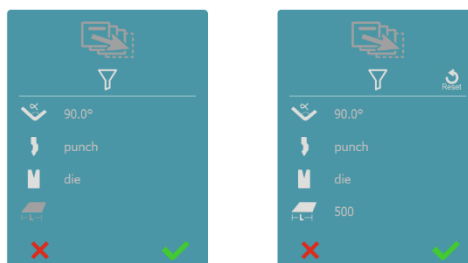
For special profile please use Numerical bend with function Pre-bend.

COPY TO ALL FUNCTION

This function allows copying a defined value to all the steps of the current program. It appears in the numerical pad of relevant fields, such as Bending length / Position offset, Force, Bending and Corrections, etc.



When pressed, the filters window will appear. In this window is possible to set the “copy to all” in function of the bend angle, punch, die, length, ecc. There are parameters that are depending of the tools and angle, in this case the filters will be automatically selected. Other filters for the copy to all are by the user



TOOLS MANAGEMENT

Tools management allows the creation and configuration on the VisiTouch of the tools to be used on the machine. These tools are then considered in bend calculations.

Once a punch and die are created and selected, you can select the bend angle you require as well as the flange length (L). The VisiTouch then calculates the positions for axes X and Y for the bend.

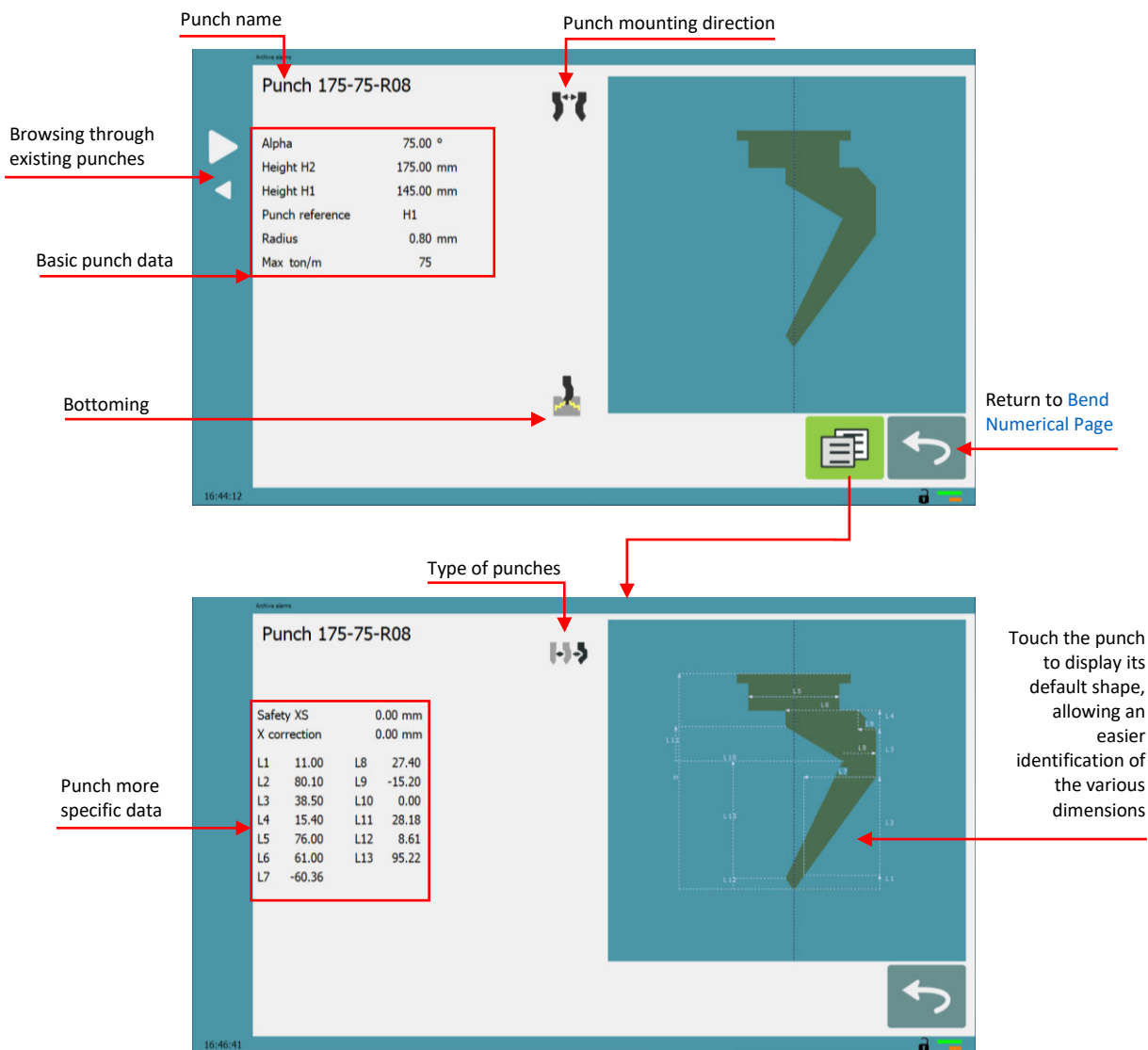
PUNCHES



[Bend Numerical Page](#) →



Press “Punch name” and “Edit tool” to modify specifications of the selected tool



Punch name

Punch mounting direction

Browsing through existing punches

Basic punch data

Alpha	75.00 °
Height H2	175.00 mm
Height H1	145.00 mm
Punch reference	H1
Radius	0.80 mm
Max ton/m	75

Bottoming

Return to Bend Numerical Page

Type of punches

Punch more specific data

Safety XS	0.00 mm		
X correction	0.00 mm		
L1	11.00	L8	27.40
L2	80.10	L9	-15.20
L3	38.50	L10	0.00
L4	15.40	L11	28.18
L5	76.00	L12	8.61
L6	61.00	L13	95.22
L7	-60.36		

Touch the punch to display its default shape, allowing an easier identification of the various dimensions



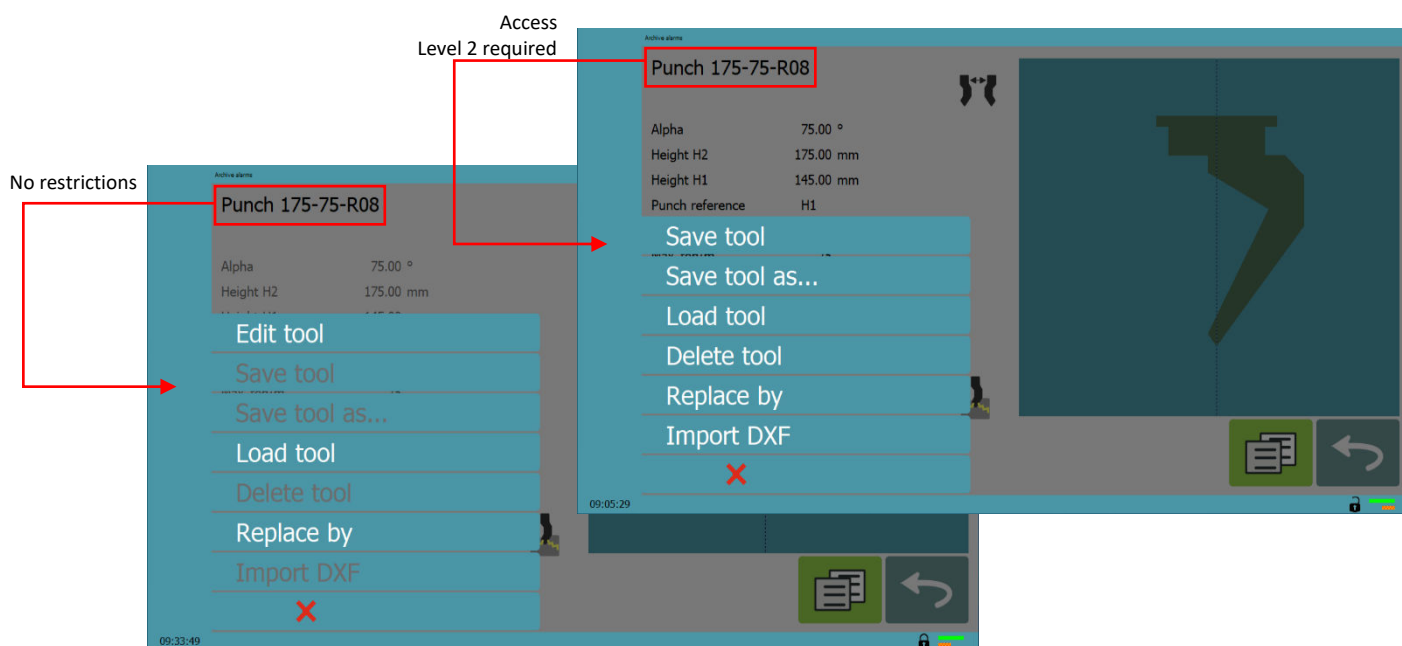
SETTING INSTRUCTIONS:

To select a punch, simply browse through the existing punches in your library using the arrows buttons, and then return to [Bend Numerical Page](#).

Punches options



To be allowed to **Edit**, **Save**, **Delete** and **Import tool**, a level 2 password is required. **Load tool** and **Replace by** can be done by the operator without level access.



Edit tool

If no punch is yet created, the punch will have no name (??? is displayed). If a punch already exists, then the last punch used will be selected, here **Punch 175-75-R08** (modifications will not alter the existing punch as they will be saved under another name).



1. Touch the punch icon  to access the punch details.
2. Enter the basic characteristics (**α** (punch angle), **Height**(H2 Head and H1 Shoulder), **Radius** and **Ton/m**) for the new punch to be created.
3. Touch the  button to invert the punch if necessary.
4. Select the  or  icon to define the tool as resistant for bottoming.
5. Touch the  button to display the More page.
6. Select the punch type (straight, normal or gooseneck) with this icon .
7. Enter the more specific dimensions L1 to Lx by referring to the graphic representation on the right of the screen. Touching this image will display the default representation of the tool, making it easier to identify the various dimensions.



The dimensions L1 to Lx are the same as the ones used in PC 1200, DNC 880S, ModEva's. If you use the same tools, print them from PC1200 to easily program them in the VisiTouch. Of course, consider giving the same tools the same name.

8. Enter the following values:
 - **Safety XS**: Security distance between the tool and the back gauge for X axis.
 - **X correction**: If the punch is not perfectly aligned.
9. Return to previous page .

Save tool

Once a value of the punch have been modified, before quit the page it is mandatory to save the tool otherwise modifications will be lost. This operation will overwrite the existing tool parameters.

Save tool as...

Once the tool parameters have been added or changed, you have the possibilities to save it under another tool name.

Load tool

Change tool with another in your library.

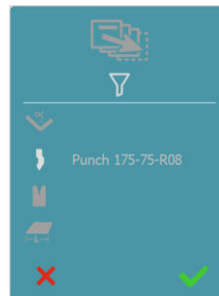
Delete tool

Delete tool from library

Replace by

Replace tool with another in your library for all profiles in function of the applied filter:

- Angle
- Punch (by default selected previous tool to be replaced)
- Die
- Lenght

**Import DXF**

It allow the import DXF files of the punch in the numerical control



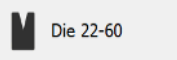
We recommend that you follow the naming conventions explained in [Naming Tools](#).

10. Touching the  button brings you back to the program page, with the punch you just saved being selected and ready to be used.

DIES



Bend Numerical Page →



Die name: Die 22-60

Die mounting direction: [Diagram showing die orientation]

Browsing through existing dies: [Left arrow button]

Basic die data:

Ve	22.00 mm (24.89)
Alpha	60.00 °
Height	60.00 mm
Radius	2.50 mm
Max ton/m	90.0 ° 100
Max ton/m	60.0 ° 50

Customizable output signal for multi die position:

- Out M Die 1
- Out M Die 2
- Out M Die 3
- Out M Die 4

Opening: 20.00 mm

Reference: 0.00 mm

Hemming: [Diagram showing hemming process]

Bottoming: [Diagram showing bottoming process]

Return to Bend Numerical Page: [Right arrow button]

Die 22-60

Die more specific data:

Safety XS	7.00 mm		
Safety RS	0.00 mm		
Retr zone	0.00 mm		
L1	30.00	L8	60.00
L2	30.00	L9	60.00
L3	30.00		
L4	30.00		
L5	0.00		
L6	0.00		
L7	17.55		

Touch the die to display its default shape, allowing an easier identification of the various dimensions: [Diagram showing die dimensions L1 through L9]



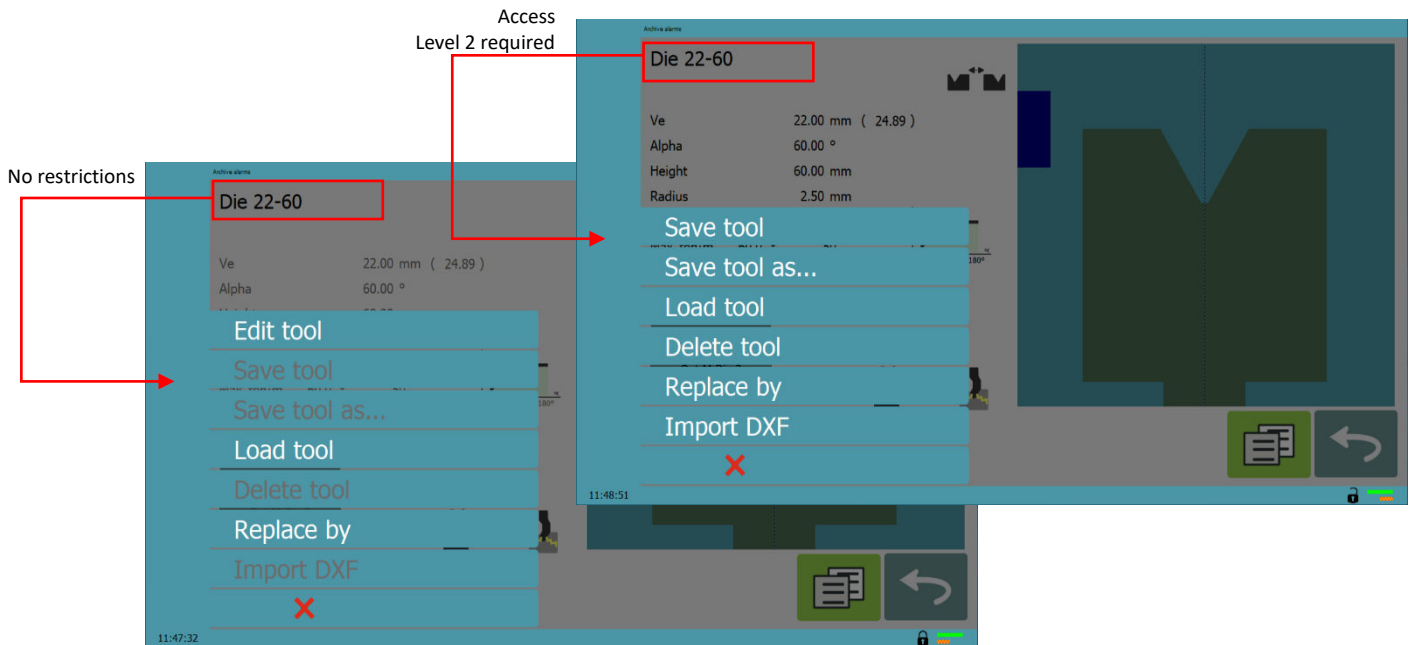
SETTING INSTRUCTIONS:

Selecting a die is the same as selecting a punch; simply browse through the existing dies in your library using the arrows buttons, and then return to [Bend Numerical Page](#).

Punches options



To be allowed to **Edit**, **Save**, **Delete** and **Import tool**, a level 2 password is required. **Load tool** and **Replace by** can be done by the operator without level access.

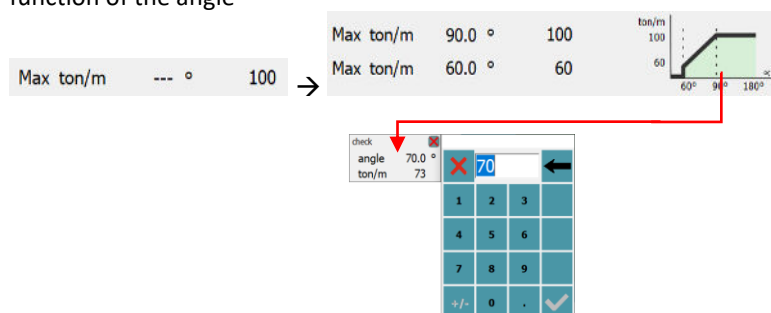
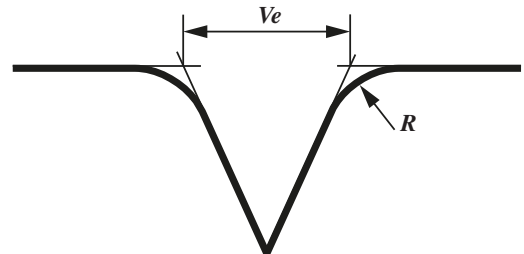


Edit tool

If no die is yet created, the die will have no name (??? is displayed). If a die already exists, then the last one used will be selected, here **Die 22-60** (modifications will not alter the existing die as they will be saved under another name).



1. Touch the die icon  to access the die details.
2. Enter the basic characteristics (**Ve** (die width), **α**, **Height**, **Radius** and **Max ton/m**) for the new die to be created.
3. Enter an angle in **Max ton/m** to configure the curve of ton/m in function of the angle



Press in the graph enter an angle and check the calculated Ton/m

4. Touch the  button to invert the die if necessary.

5. Select the type of Hemming table:
 -  Hydraulic/electric with command to open and close
 -  Hydraulic one direction with spring
 -  Not available
6. Select the  or  icon to define the tool as resistant for bottoming.
7. Touch the  button to display the More page.
8. Enter the more specific dimensions L1 to Lx by referring to the graphic representation on the right of the screen. Touching this image will display the default representation of the tool, making it easier to identify the various dimensions.



The dimensions L1 to Lx are the same as the ones used in PC 1200, DNC 880S, ModEva's. If you use the same tools, print them from PC1200 to easily program them in the VisiTouch. Of course, consider giving the same tools the same name.

9. Enter the following values:
 - **Safety XS**: Security distance between the tool and the back gauge for X axis.
 - **Safety RS**: Security distance between the tool and the back gauge for R axis.
 - **Retr. zone**: Retraction zone.
10. Return to previous page  .

Save tool

Once a value of the die have been modified, before quit the page it is mandatory to save the tool otherwise modifications will be lost. This operation will overwrite the existing tool parameters.

Save tool as...

Once the tool parameters have been added or changed, you have the possibilities to save it under another tool name.

Load tool

Change tool with another in your library.

Delete tool

Delete tool from library

Replace by

Replace tool with another in your library for all profiles in function of the applied filter:

- Angle
- Punch
- Die (by default selected previous tool to be replaced)
- Lenght



Import DXF

It allow the import DXF files of the punch in the numerical control



We recommend that you follow the naming conventions explained in [Naming Tools](#).

11. Touching the  button brings you back to the program page, with the die you just saved being selected and ready to be used.

NAMING TOOLS

It is recommended that you use naming conventions for your tools.

Below you will find a simple convention allowing you to precisely identify a punch or die through its name.

Of course, depending on your needs you may need to create more rules for punch and die naming.

Punches

The name of the punch should be built in the following manner: first its angle, followed by its type, and then whether it is inverted or not.

PUNCH ANGLE		PUNCH TYPE		INVERTED OR NOT
30		N = Normal		
60	–	S = Straight	–	i = If inverted
90		G = Gooseneck		

Following these rules, here are some examples of punch names: **90_N_i**, **60_G**, **30_S**, and so on, and so forth.

Dies

The name of the die should be built in pretty much the same manner: first its width (Ve dimension), followed by its angle, and then whether it is inverted or not.

VE (mm)		DIE ANGLE (°)		INVERTED OR NOT
12		30		
16	–	86	–	i = If inverted
20				

Following these rules, here are some examples of die names: **12_86_i**, **16_86**, **20_30**, and so on, and so forth.

CREATING A PART PROGRAM

There are three ways to create a program part: with the [TouchProfile Mode](#), with the [Numerical Mode](#), and with the [L-Alpha Mode](#).



In this chapter the machine is considered operational: machine parameters, tools (see [Tools Management](#)), materials (see [Materials](#)), etc. are already configured and programmed.

GRAPHICAL 2D

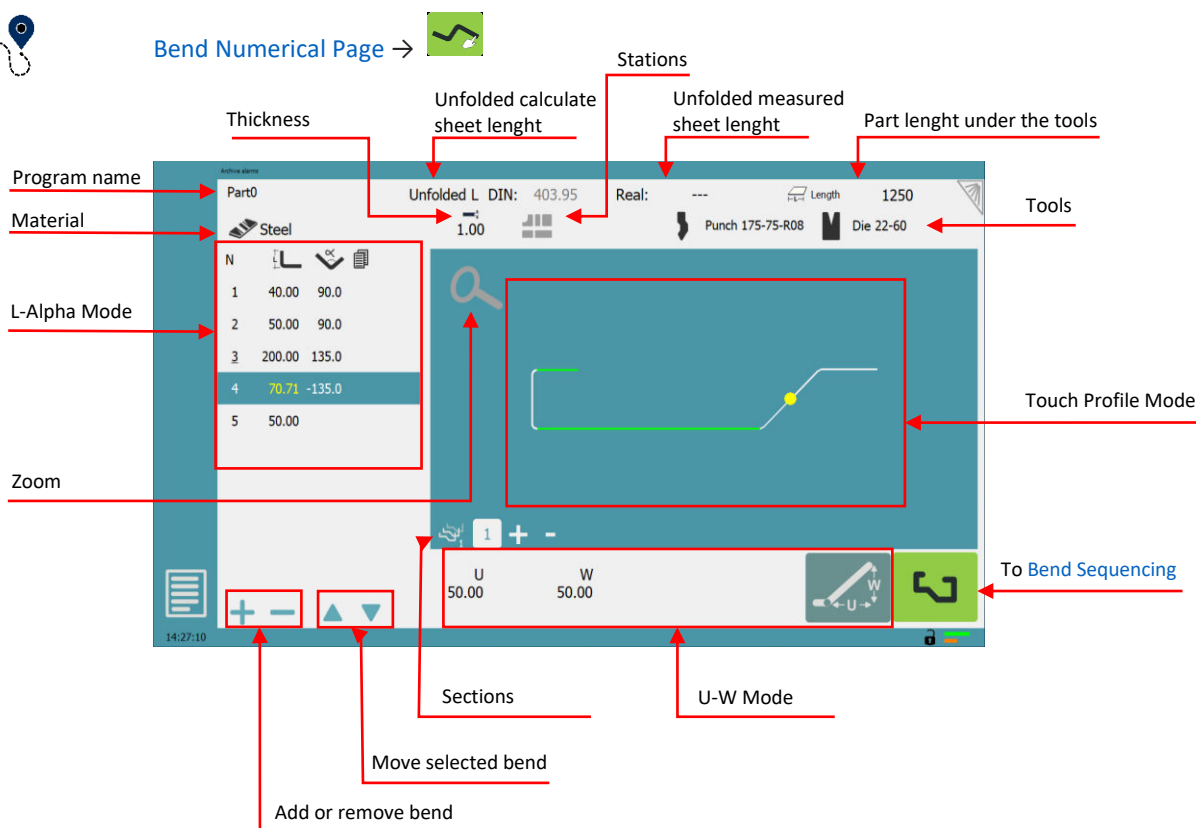


SETTING INSTRUCTIONS:

1. Touch [Program name](#), select [New program](#) in the list, and touch [Graphical 2D](#).
2. First select the material, the Material thickness (see page 22) and the tools to be used for the part by touching their respective icons.



[Bend Numerical Page](#) →

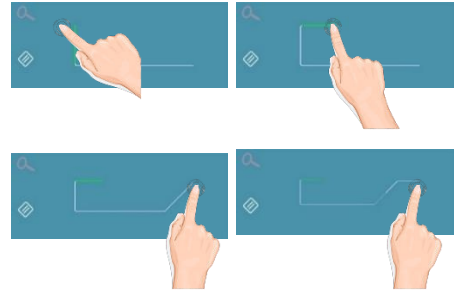


Touch profile mode



SETTING INSTRUCTIONS:

1. Draw the profile by touching the screen where you want to add a segment.

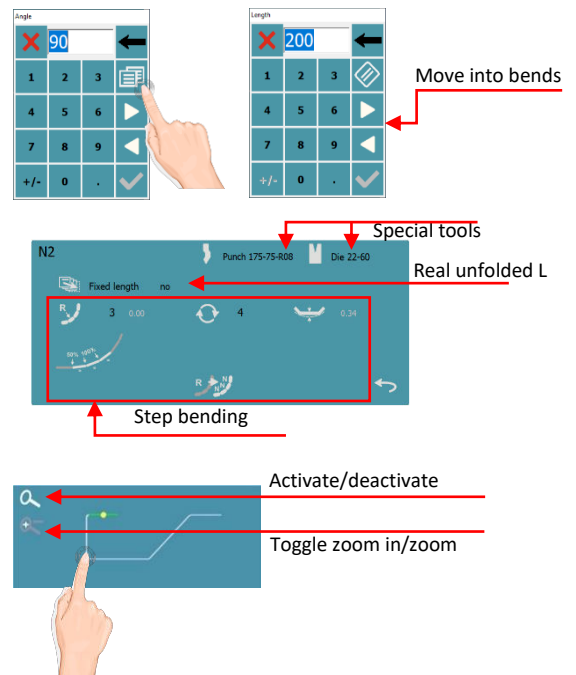


Touching this icon  allows erasing the last segment added

2. Touch on the middle of a segment to modify its value.



3. Touch on an angle to modify its value. Touching the  More parameter for step icon will open a pop-up, in which it is possible to:
 - Activate (and deactivate) a special tool by touching its icon and select it from the library.
 - If Real unfolded length is different from calculate, it is possible to choose which step needs to keep calculated length. The value can change in function of tooling and K-factor.
 - Please see Step bending chapter in [Extra Bending Parameters](#)



4. Should it prove difficult to select a particular segment or angle, it is possible to zoom on an area by touching this button  and then on the desired zone.

5. Once all the segments and angles are adjusted, press this button  to access [Bend Sequencing](#).

L-Alpha mode

In this mode, the operator can define each step (length or angle) of a profile on a table. On the left side of the screen the L-Alpha mode is accessible at any time.



SETTING INSTRUCTIONS:

1. Table:

- N Bend number
-  Flange Length (exterior)
-  Bend angle
- [More parameter for step](#)

N			
1	40.00	90.0	
2	50.00	90.0	
3	200.00	135.0	
4	70.71	-135.0	
5	50.00		

2. Commands:

-  Add bend
-  Remove bend
-  Move selected bend into another position



- If a bend needs special parameters (large radius, special tool), press in the more field of the corresponding sequence.

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

- Once all the segments and angles are adjusted, press this button  to access [Bend Sequencing](#).

U-W mode

In this mode, the operator can define each step (length and angle) with the origin of the previous step through axes U and W.



SETTING INSTRUCTIONS:

1. Select the reference step through the Touch profile or the L-Alpha
The line will have a yellow ball in the middle.
2. Press this button  to access the U-W mode .
The reference line will automatically be in the middle of the Touch profile screen

3. Enter the values in U and in W

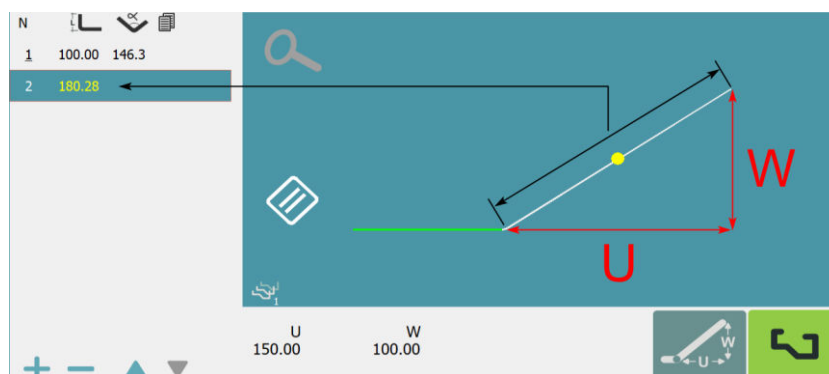
i.e.:

U	W
150.00	100.00

The step length will be automatically calculated i.e.: **180.28**

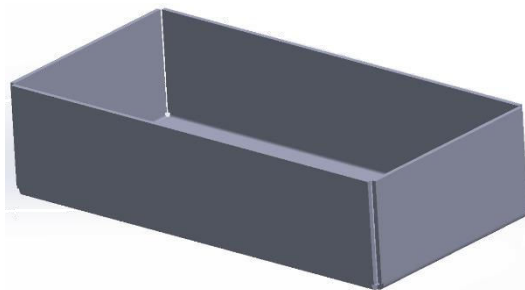
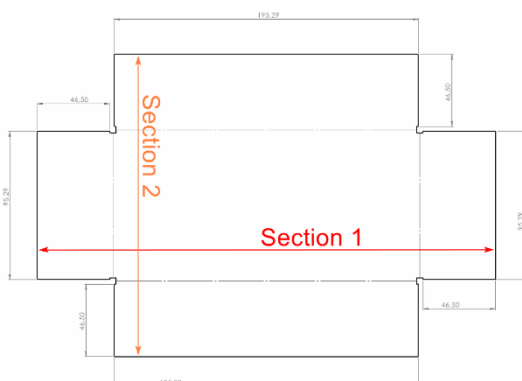
5. Commands:

-  Add bend
-  Remove bend
-  Move selected bend into another position



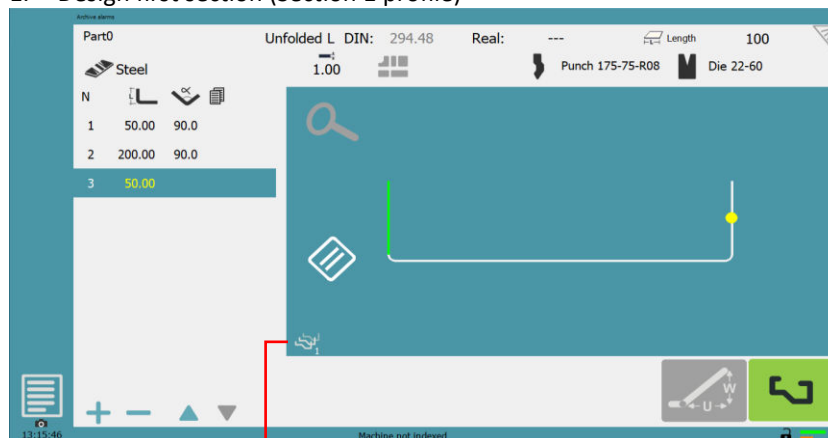
Multi profiles

This function allow create multi profiles in one program.
Here below an example to create a box 200 x 100 x 50 (L x W x H)



SETTING INSTRUCTIONS:

1. Design first section (Section 1 profile)



2. Press and a slide menu will open 1 + -

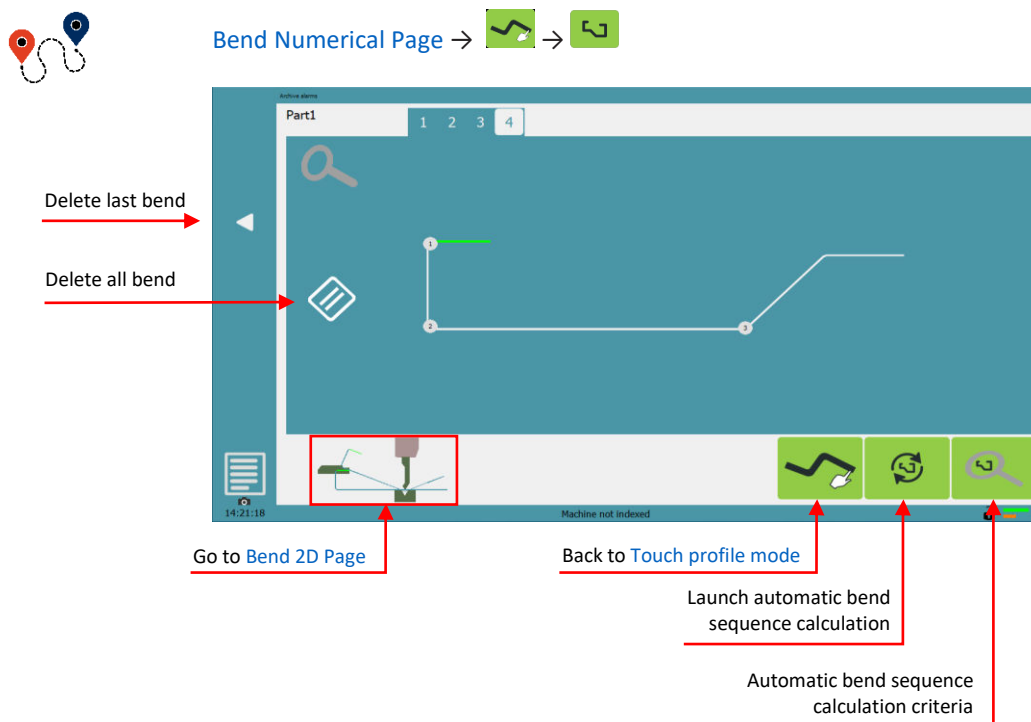
-  1 Number of the section (Section 1)
-  + Add section
-  - Remove section

3. Press + to add new section and the slide menu change to the next section

4. Design second section (Section 2 profile)



BEND SEQUENCING



Once the shape of the part has been defined, the bending sequence for the part can be determined.

In this page there is the possibilities to select manually the bend order by pressing in each angle  or with the automatic bend sequence .



SETTING INSTRUCTIONS:

1. Touch the bend sequence calculation button . Once the sequence is calculated, the Bend 2D screen is displayed.



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

2. Immediately after determining the last bend to be selected, the [Bend 2D Page](#) here below is displayed.



[Bend sequencing](#) can show the warning:

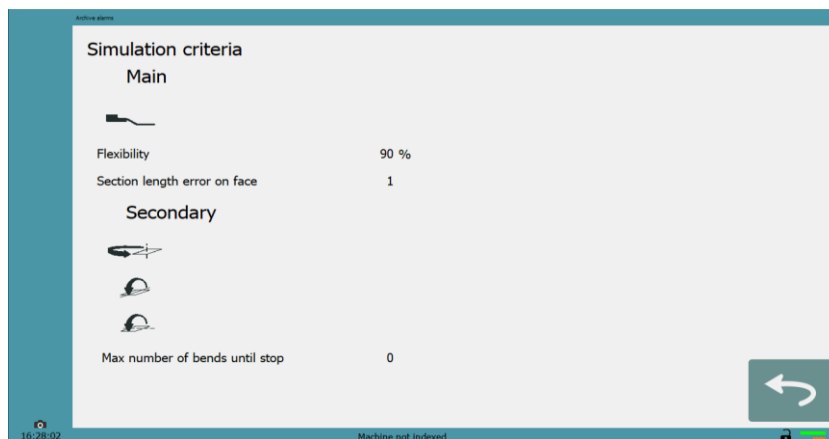
INFORMATION : [IA-70.40] Solution not found

It may be possible that the Software cannot find a solution. The reasons can be:

- Collisions, the software are not able to find others solutions
- Design of the part
- Tools
- Simulation Criteria

For special profile please use Numerical bend page.

Page Simulation Criteria



Main



Enable the back gauge stop against a slope segment

Flexibility

When this criteria is validated, the software accepts that a part of the product knocks against a point of the machine with a flexibility in % of the length of the sheet between the bend and the end of the product on the side of the profile which enters in to collision.

Section length error on face

The software arranges that the section error is located on the specified face.

Secondary



The software will choose the solution which demands the least possible number of swings.



The software will choose the solution which demands the least possible number of returns.



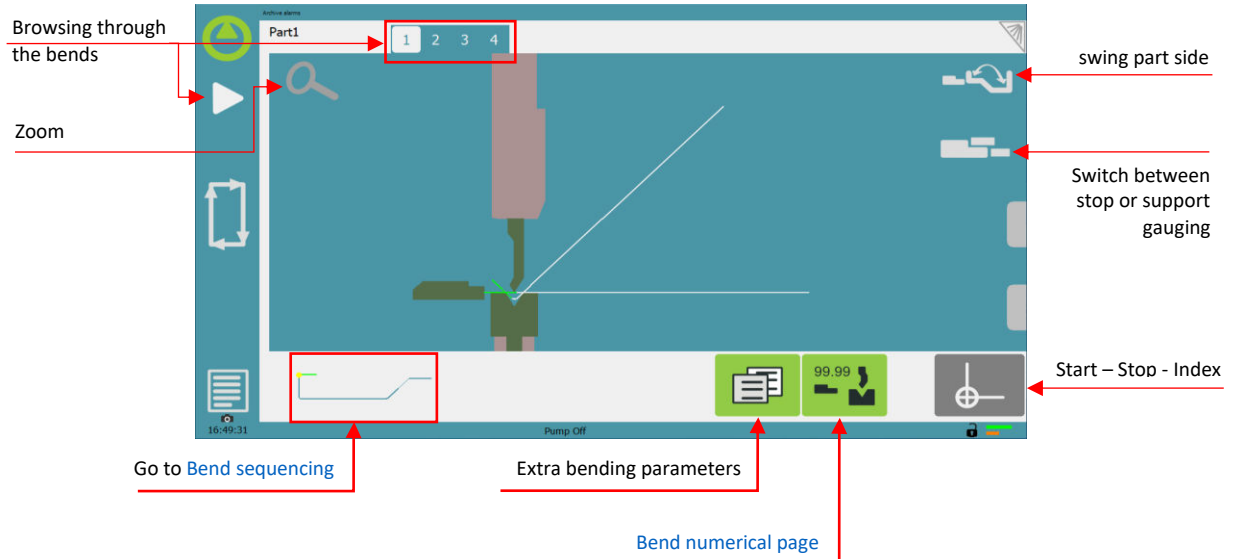
The software will choose the solution which demands the least possible number of flipovers.

Max number of bends until stop

Limit the number of bends (already realized) situated between the backgauge and the bend to be realized.

BEND 2D PAGE

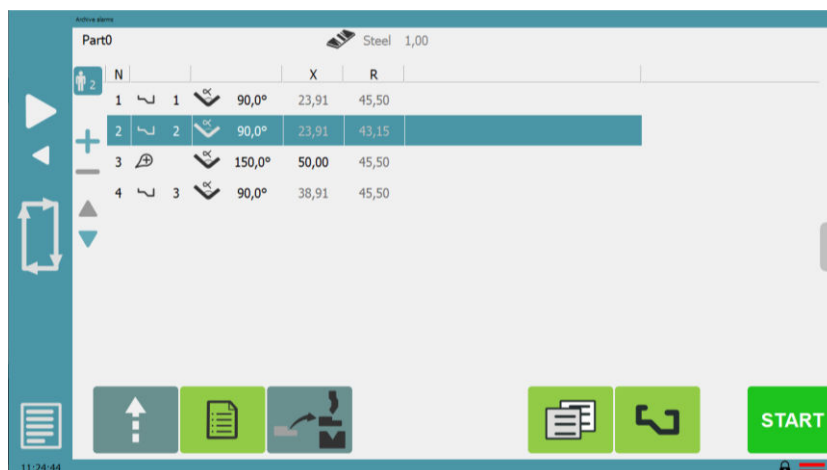
In the Bend 2D page, the operator must determine the back gauge and part position for each bend, and if necessary Extra Bending Parameters.



1. Start the hydraulic pump motor (by pressing this button  if available. It turns red when the motor is running).
2. Press  to index the machine
3. Press the  button to position the machine according to the data that were just entered.
4. When the machine is ready to bend, a  button is displayed.
5. If you want to repeat the same step in order to apply all the necessary corrections to it, switch to the [Semi-Automatic mode](#).
6. Press the foot switch to execute the bend.

Add extra bends in graphic parts

For special bend operations (pre-bend, flatten, etc.), extra numerical bends can be inserted in a graphic part. Select the Part bend list on the Bend numerical page, select a bend in the list and touch the + button. A copy of the selected bend will be inserted as an extra numerical bend. An extra bend can be deleted by selecting it and touching the – button.



Extra numerical bends are marked with the  symbol and can be moved around in the list using the up and down arrows. Modify the bend data as required on the Bend numerical page for the extra bend.

On the Bend numerical page, an extra bend can be inserted by touching the bend number and then selecting *Insert step*. Use *Delete step* to remove an extra bend. The bend number of an extra bend is highlighted and marked with the extra bend symbol

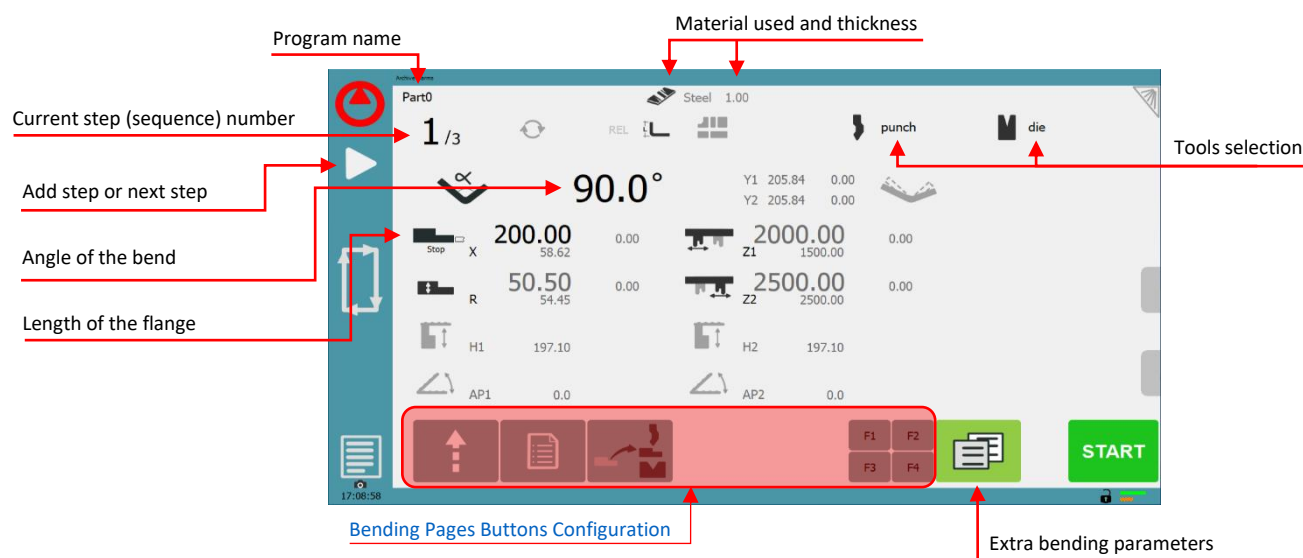
3⁺



On the Graphic bend page, extra numerical bends are represented with the  graphics.

NUMERICAL MODE

It is also possible to simply create a part program directly on the [Bend Numerical Page](#).



SETTING INSTRUCTIONS:

1. Touch the program number, select **New program** in the list, and touch **Numerical**.
2. First select the tools to be used for the part by touching their respective icons (see [Tools Management](#)).
3. Touch the **Material's** name (here **Steel**) until the one used is displayed.
4. Touch the Material thickness and select or enter the proper one.
5. In the **Extra Bending Parameters'** section, enter the Bending length, and other sequence parameters (Opening (TDC), Slow speed return, etc.).
6. Touch the numerical value next to the angle icon , and enter the value for the first bend you wish to create (here **90°**).
7. Touch the numerical value next to the segment length icon , and enter the value for the first segment you wish to create (here **200.00 mm**).
8. Add the next bend to the program by touching .
9. Proceed in the same manner to create the other segments of the part.
10. Touch  to return to the first bend.
11. Start the hydraulic pump motor (by pressing this button  if available. It turns red  when the motor is running).
12. Press the **START** button to position the machine according to the data that were just entered.
13. When the machine is ready to bend, a **OK** button is displayed.
14. If you want to repeat the same step in order to apply all the necessary corrections to it, switch to the [Semi-Automatic mode](#).
15. Press the foot switch to execute the bend.

BENDING AND CORRECTIONS

All program corrections are made in the [Bend Numerical Page](#). According to his preferences, the operator can choose to execute all the steps of the program one after the other, making corrections along the way or he can choose to apply all the corrections necessary to the same step before moving to the next one using the [Semi-Automatic mode](#).

Corrections can be made to:

- The angle (Y1 + Y2, see [Angle Correction \(Y axis\)](#) and/or crowning if available, see [Crowning](#)),
- The back-gauge position (X and R, if available), see [Back gauge \(X & R axes\) Correction](#).

Semi-Automatic mode



The semi-automatic mode allows repeating the same sequence indefinitely. It is used when the operator wants to apply corrections to his part one bend after another. He can thus execute the same step until he gets the desired result, before moving to the next one by means of the  button.

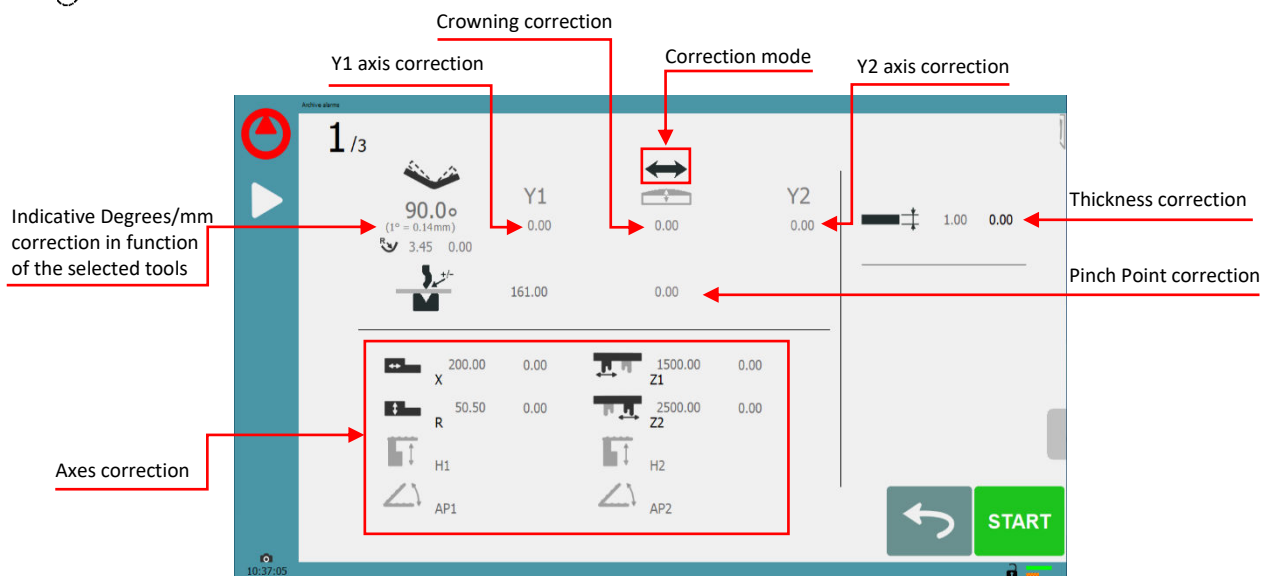
The semi-automatic mode is activated (and deactivated) by touching for more than one second on the  button.

Angle Correction (Y axis)

After physically measuring the angle, if corrections are to be made, they must be done on this page, and not directly in the program step.



Bend Numerical Page →

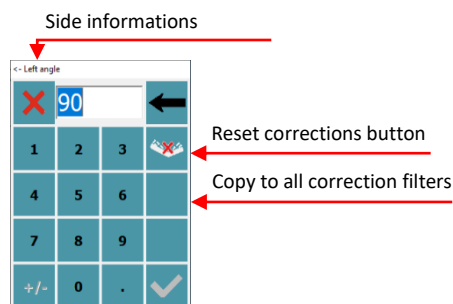


SETTING INSTRUCTIONS:

1. Select the correction mode:

-  Equal correction in both Y1 and 2 axes
-  Specific corrections to the Y1 and Y2 axis
-  Specific correction to the Y1 axis, Crowning and Y2 axis

- #### 2. Touch the angle correction icon and enter the physically measured value of the angle. The numerical control will automatically calculate the Y1 and Y2 axes corrections.



Pressing this  button will reset all angle corrections.

- #### 3. Depending on the position of the sheet metal in the press, it may be necessary to fine-tune the beam's corrections. It is possible by simply touching this icons or this one and entering the desired values.



- #### 4. Depending on the length part and the machine size, the corrections are calculated in their respective ends of the machine Y1 and Y2 cylinders. It can happen that the corrections are too important and the beam touch the limit of synchronism between Y1 and Y2 axes, in this case a message error appear:

INFORMATION : [IA-70.105] Resulting Y1/Y2 corrections causes an excessive synchronism error !

Crowning

5. Corrections to the crowning value can be made by touching this icon  0.15 .

6. The numerical control automatically calculates the Pinch Point height. If it needs correction, it can be done by touching this icon .



The greyed value next to the Pinch Point correction icon is the value calculated by the numerical control, and thus the value onto which the correction will be applied.

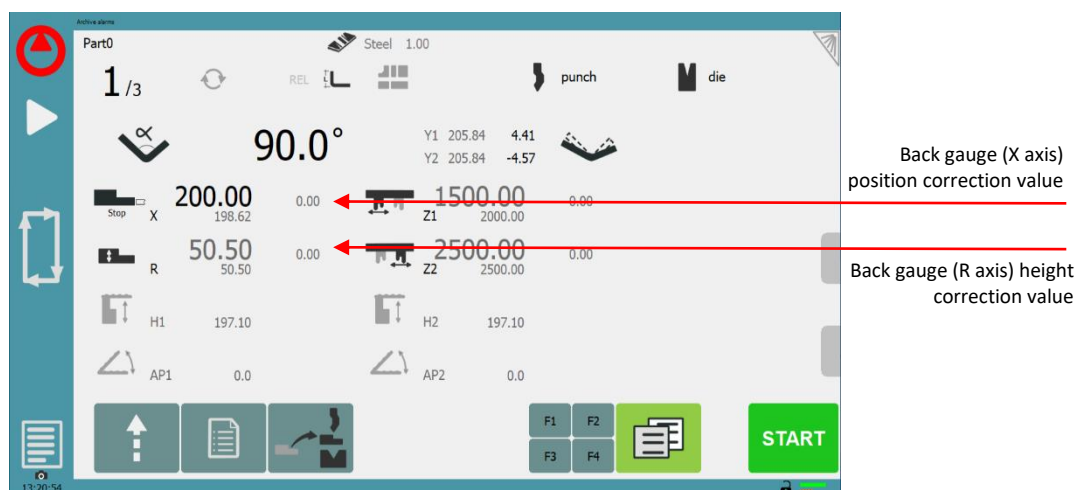
Back gauge Correction



7. Touching the values next to any axes 0.00 allows entering a correction.

The axes corrections 0.00 can be positive or negative and will be added to the axes positions.

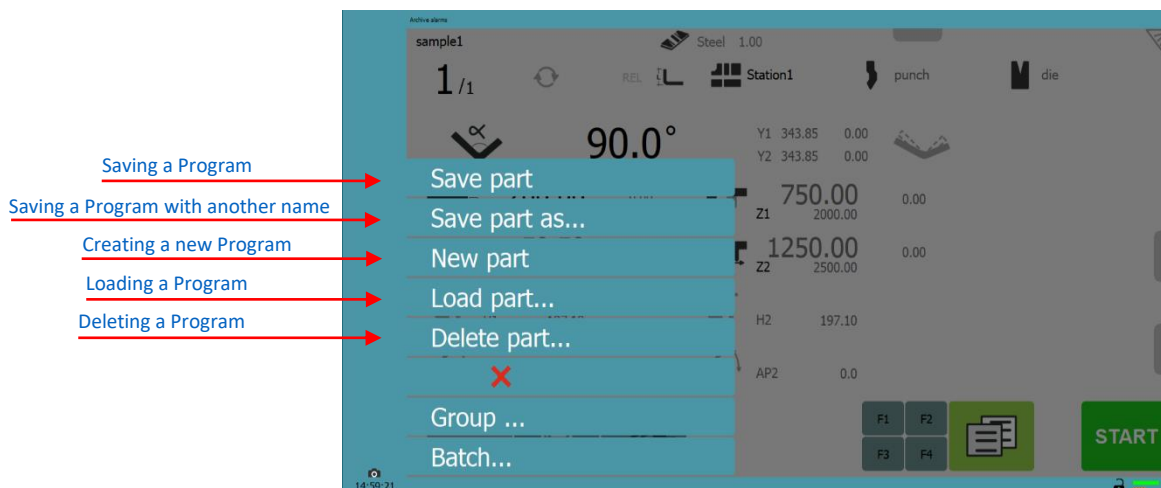
The back-gauge positions corrections can also directly be made on the [Bend Numerical Page](#).



MANAGING PROGRAMS

Because the production of parts follows cycles, the programs related to those parts need to be managed. They need to be stored, called into function, and so on.

On the VisiTouch, the Program name is displayed on the top left corner of different pages. Touching it will open the following menu:



SAVING A PROGRAM

After creating a program, an operator can save the program in order to use it again:

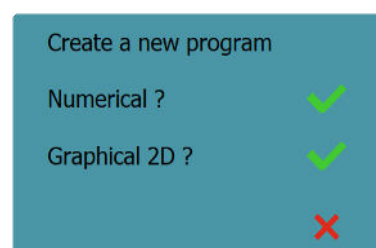
1. Touch the Program name.
2. Touch **Save part as...** to save a new part. Give it a distinctive name using the alphanumerical keyboard and validate with .
3. Or touch **Save part** to save the modifications made to an existing part.
4. The program is now saved in the VisiTouch.

CREATING A PROGRAM

To create a new program:

1. Touch the Program number (e.g. **Sample1**).
2. Touch **New program**.
3. A pop-up windows asks what kind of program:

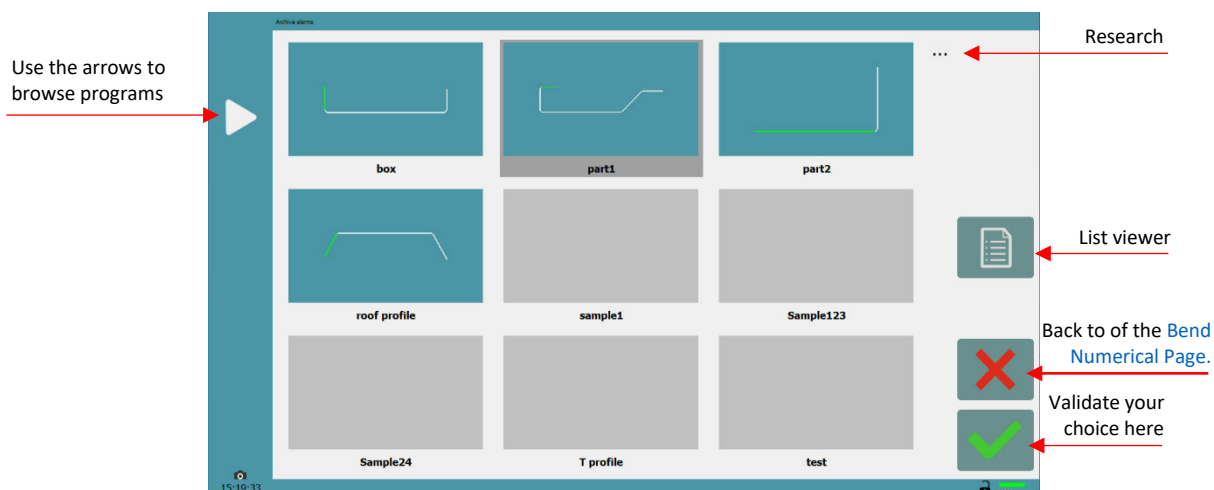
- » Selecting **Numerical** will open a new program in the **Numerical Mode**.
- » Selecting **Graphical 2D** will open a new program in the **TouchProfile Mode**.



LOADING A PROGRAM

To call (load) a program:

1. Touch the Program name.
2. Touch **Load part**.
3. Browse through the programs using the arrows and select the program to be loaded.
4. Validate your choice by touching .
5. The selected program is then loaded into the work memory and is ready to be used.



Programs created with the TouchProfile Mode have a small miniature to help easily to identify them from those created in Numerical Mode.

DELETING A PROGRAM

To delete a program:

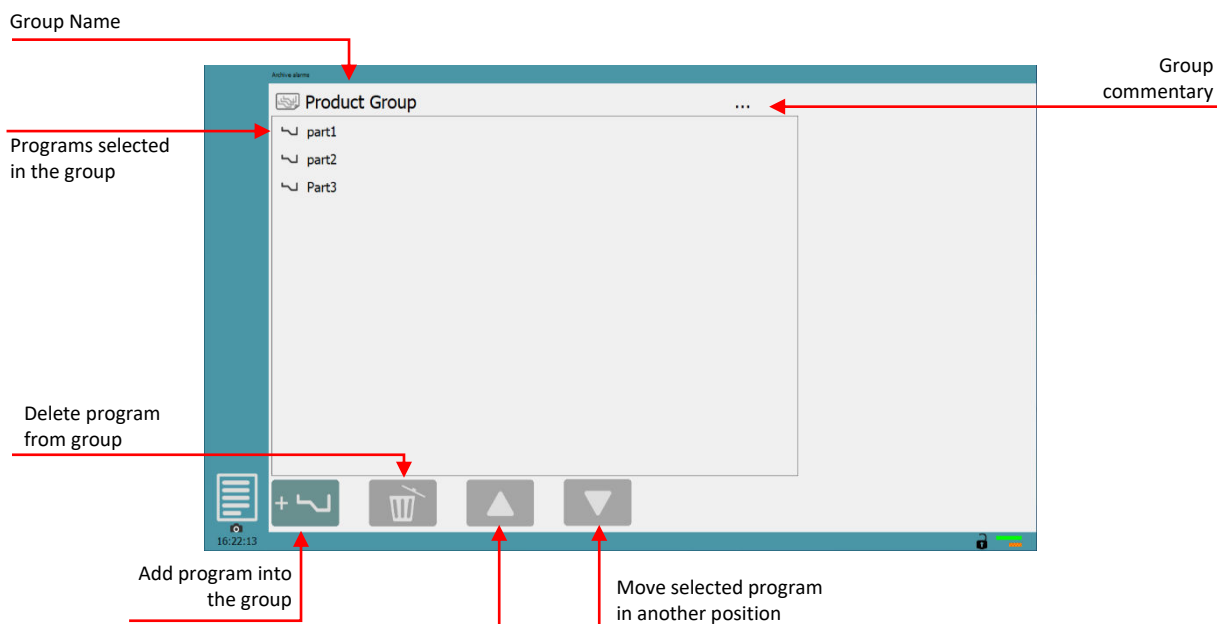
1. Touch the Program name.
2. Touch **Delete program**.
3. Browse through the programs using the arrows and select the program to be deleted.
4. Validate your choice by touching .
5. Confirm in the pop-up window.

EXTRA FONCTION

GROUP AND BATCH

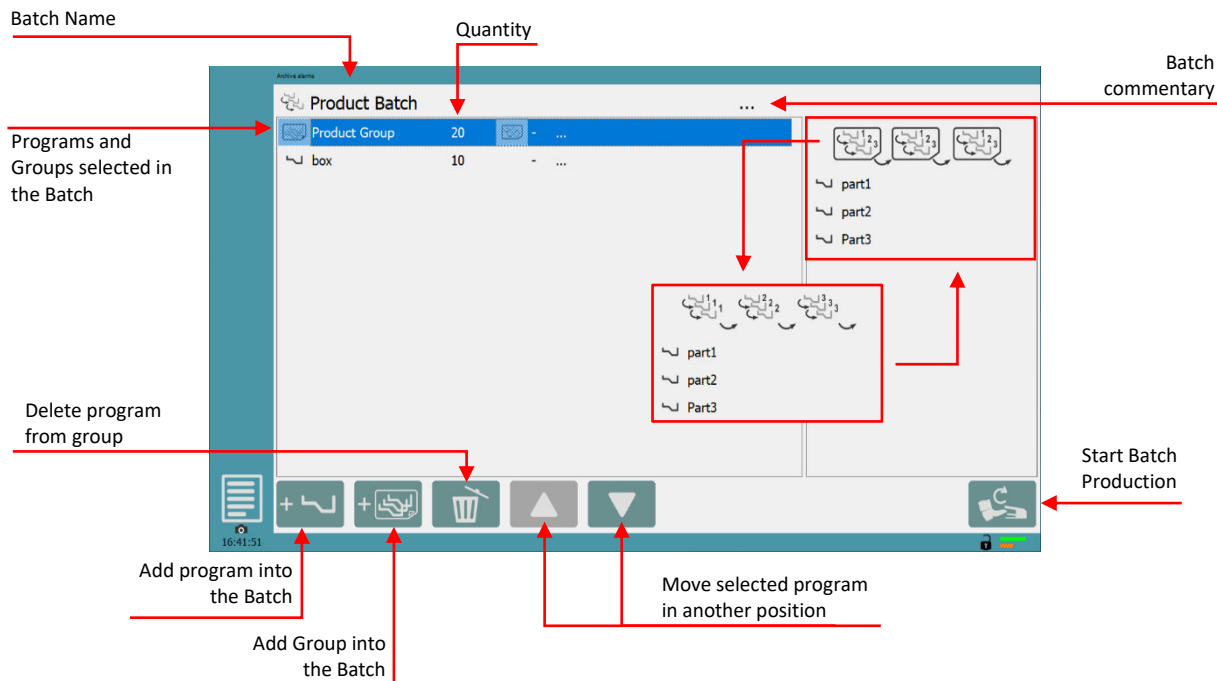
For series production, there is the possibility to use the function Group and Batch to create a series of programs.

1. Press the Program name.
Press **Group ...**
Press **New Group**



2. Add into the group all programs you need in the production series
3. Press  menu and select **Save group as ...**. And use keyboard to write the name of the group (here: **Product group**)
4. Press  once the group have been saved and you will come back to the Bend Numerical page.

5. Press the Program name.
6. Press **Batch ...**
7. Press **New Batch**



8. Add into the Batch all programs or groups you need in the production series
9. Press the desired Batch mode by pressing in the image:
 - A suite of groups
 - A suite of programs (
10. Press menu and select **Save Batch as ...** And use keyboard to write the name of the group (here: **Product Batch**)
11. Press once the Batch have been saved and you will come back to the Bend Numerical page and start the series production.
12. A yellow pop-up will inform you about the part loaded and Quantity requested

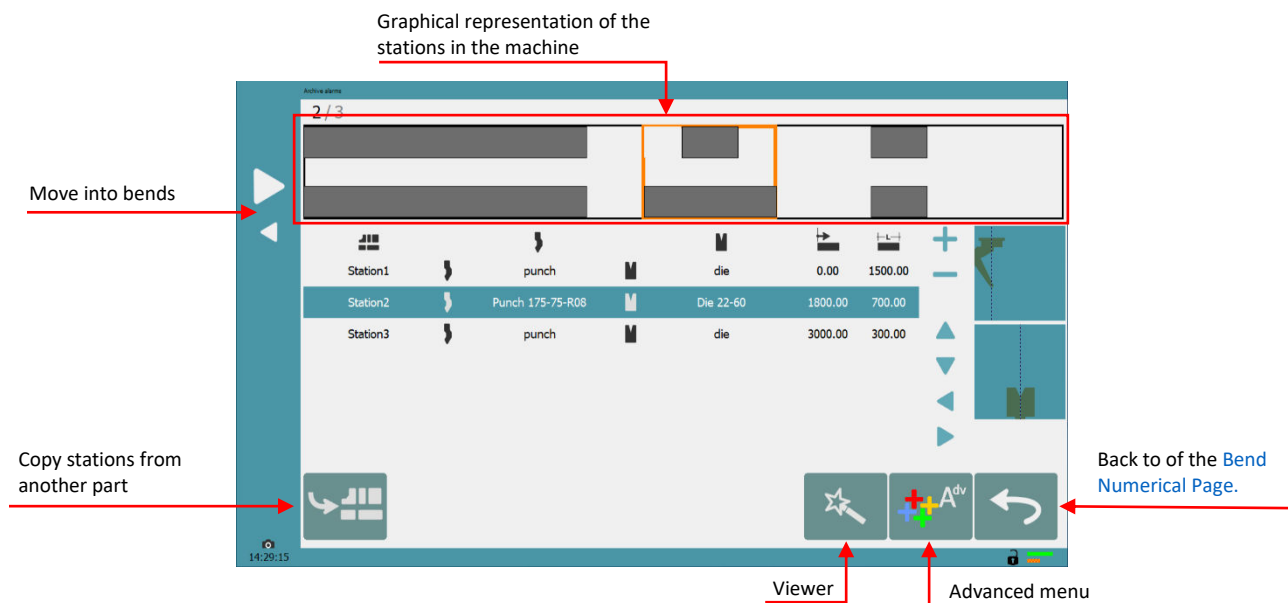
Part Loaded:Part1
Quantity Requested:20

✓
13. The program name will be substituted with the Batch Name and the actual program name in production.

Product Batch
Part1
14. For quit the Batch select program Name (Here: **Product Batch**)
15. Press **Batch...**
16. Press **Review Batch**
17. Press to quit the Batch mode.

STATION MANAGEMENT

The machine can be equipped with more than a pair of tools. The function Station manage the the tools configuration and the position of each game of tools in the machine.

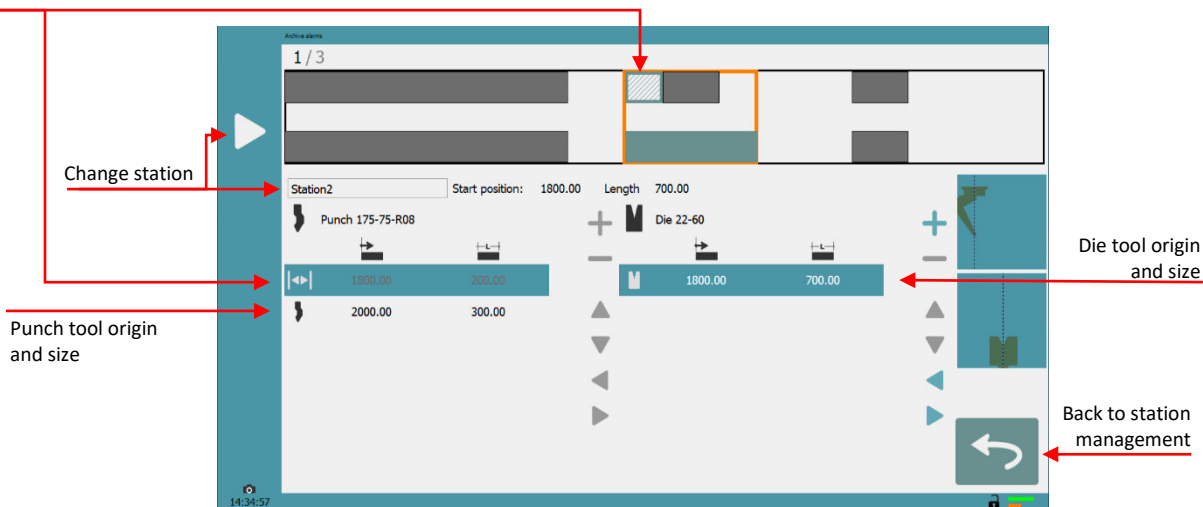


SETTING INSTRUCTIONS:

- Press  on the top center of the [Bend Numerical Page](#).
- Table:
 -  Number of the station
 -  Punch
 -  Die
 -  Position from origin
 -  Length of the tools
- Commands:
 -  Add station
 -  Remove station
 -  Move selected station into another position
 -  Move selected station to the left or to the right from the actual position
- Fill the table data for each station by choosing the station tools  and , set the position from the origin  and the size of the punch and die tools .

5. Advanced menu  allow personalisation of the station between upper and lower tool

Punch Offset



If the operator want to create a new numerical part and station is activate

 Station1  punch  die it is not possible to change the tools directly from the [Bend Numerical Page](#). In this case a message will appear:

INFORMATION : [IA-70.21] Part using Stations

It will be necessary to delete all stations before be able to manage the tools. Otherwise tools will keep the same configuration as in the Station management.

TROUBLESHOOTING

FASTWARE ERROR MESSAGES

MSG NR.	DESCRIPTION	COMMENT
1	Command not considered	After ordering certain controls, the error indicates that the control has not been taken in consideration by the axis. The reason is that the control is not compatible with the functions that are active at the moment. This error is considered as a warning. This error can be generated in the following cases (non exhaustive list) : - An axis function is already active and the start of another axis function has been ordered. - The regulator is set on and an identification of the axis has been ordered. - The regulator is set on and the virtual mode set on or off has been ordered. - An axis function is already active and an initialization of the axis origin has been ordered.
2	Request Command not considered	If the system is unable to give back some status information that was requested, the error indicates that the message manager is saturated. This error is considered as a warning.
3-4	End set point position will be over the software limits	The error indicates that the end set point position of an axis function will be over one of the axis position software limit. For the most part of the cases, the real axis position will not go over the specified axis limits because a checking of the limits is performed during the initialization of the axis functions. This error is considered as a warning. This error can be generated in the following cases : - During the set on of the Increment axis function when the specified increment would provoke a move with an end position over the axis limits. In this case, the axis moves up to the axis limit. - During the increment mode of the manual mode when the specified increment would provoke a move with an end position over the axis limits. In this case, the axis moves up to the axis limit. - During the set on of the Interpolation Mode axis function when its execution would provoke a move with a position over the axis limits. In this case, the interpolation does not start.
5	Loss of synchronization	This error can happen in the case of a synchronization of some axes by the sending of a synchronization event from a master axis by the block Synchro Master and the waiting of this event with a phase lag in time on the slaves axes by the block Synchro Wait . If the reception instant of the synchronization event is produced when the axis already waits this event, an axis error is generated to indicate a loss of synchronization. This error is considered as a warning.

6	Recorder already busy	Only one recorder per axis of one target can be used in the same time. This error is considered as a warning .
7	Command not allowed in secure mode	Some functions can not be activated when the system is in secure mode. This error is considered as a warning .
8-9	Direction not allowed	When an axis reaches a hardware limit and the respective limit switch is active, it is not possible to move farther the axis in the direction of the limit switch. However, it is possible to move the axis in the other direction. This error is considered as a warning .
10	Attempt to open an unknown global	The recorder tried to record an unknown global variable. This variable has not been defined in the target system. This error should at the start of a record when the identifier name of a global variable is not found This error is considered as a warning .
11	Position not consistent	During the actual position acquisition process of the axis (each sampling time), one position value has been considered as not consistent and has been replaced by an estimated value of it. This error is considered as a warning .
12	Extern function of cycle not installed	Attempt to access an extern function of a cycle not installed into the system. This error is considered as a warning .
13	Attempt to Start/Stop an unknowns cycle	Attempt to start or stop an unknown cycle from a cycle block " Start Cycle ", " Start CycleAux " or " Stop CycleAux ". This error is considered as a warning .
14	Start cycle not allowed	Start of a cycle not allowed from a cycle block " Start Cycle ". It happens when a cycle try to start a cycle located in the same area. This error is considered as a warning .
30-31	Set point position over the software limits	The error indicates that the set point position of an axis function is over one of the axis position software limit. For the most part of the cases, the real axis position will not goes over the specified axis limits because a checking of the limits is performed during the initialization of the axis functions as well as of the cycles. This error is considered as a simple error . This error can be generated in the following cases : - During the initialization of a "Ipo Buf" cycle block when its execution would provoke a move with a position over the axis limits. In this case, the block is not executed and the cycle is stopped. - During the initialization of a "Cam On" cycle block when its execution would provoke a move with a position over the axis limits. In this case, the block is not executed and the cycle is stopped. - During the execution of a cycle, when the check conditions of the position limits of the axes are not satisfied (see specific rules in paragraph "Check of the position limits before the cycle start" in section "Definition of the position in a cycle" of "Cycle Rules"). In this case, the cycle is stopped.

32	Regulation error over the limit	The error indicates that the position error of the regulator has been over the supervision limit specified in the regulator data. This error is considered as a simple error. This error can be generated in the following cases (<u>non exhaustive list</u>) : - A disturbance has provoked a too big position error. - The power of the motor is off. - The current control required to follow a reference trajectory can not be delivered to the motor because of the physical current limitation of the motor. In this case, the reference trajectory can not be followed and the position error is too big. - The speed of the reference trajectory is higher than the physical limit speed of the motor. In this case, the reference trajectory can not be followed and the position error is too big. - Defectiveness of the measurement system or in the power electronics or in the mechanical part provokes this error. In all of these cases, as soon as the maximal error is reached, the regulator is set off as well as the motor power stage and the brake is set on.
33	Control Time Out	The error indicates that the control (analog output) generated by the regulator has been in the maximum level of 100% (or –100%) during more than the specified control time out specified in the regulator data . This error is considered as a simple error.
34	Interpolation buffer empty	During the execution of the Interpolation Mode function or of the cycle block Ipo Buffer, the error indicates that no interpolation position is available in the interpolation buffer at the moment. This error is considered as a simple error. This error can be generated in the following cases : - The interpolation function has not been initialized by the corresponding initialization function and the interpolation buffer is consequently empty. - During the automatic management of the positions downloading by blocks of the interpolation buffer, a block has not been downloaded at time and a break of the interpolation has been produced. In this case, the sampling period of the interpolation has probably to be increased.
35	Regulation parameters not valid	This error indicates that the regulator of the axis has been set on with a not valid set of regulation parameters. All sets of parameters that are used have to be at least one time checked and accepted in the configuration tool. This check phase is automatically done when the tuning phase of the regulator is done through the configuration tool, for example when the regulator is manually set on from the configuration tool. This error is considered as a simple error.
36	Computation error on variable	This error indicates that a computation error occurs during a variable evaluation (division by 0, square root of a negative number, ...). This error is considered as a simple error.
37	Regulation is off on axis involved in coordinate transformation	This error indicates that the regulator has been set off when the axis is involved in a coordinate transformation. The coordinate transformation has to be set off. This error is considered as a simple error.
38	Error on axis involved in a coordinate transformation	This error indicates that an error occurs on an axis involved in a coordinate transformation. This error can be generated in the following cases :

		- The set point position of an axis function is over one of the axis position software limit. - The regulator of an axis is off. This error is considered as a simple error.
39	Speed supervision over the limit	The error indicates that the speed supervision function has set off the regulator as well as the motor power stage. This is due to possible damage in the position measurement system. This happens when the control level is up to the "Speed Supervision Level" value and the measured speed is null during more than the "Control Time Out" value. This error is considered as a simple error. If this error occurs when the position measurement system works correctly, the "Speed Supervision Level" value or the "Control Time Out" value has to be increased.
40	Command buffer of independent axis full	Error generated when the commande buffer of an independent axis is full. This error is considered as a simple error
41	Indipendent axis not free	Error generated when an order is addressed to an independent axis which is currently controlled from another cycle. Error generated when it is tried to make free an independent axis which is currently controlled from another cycle. This error is considered as a simple error.
42	Inconsistent coordinate transformation identifier	Error generated during a cycle when a block managing a coordinate transformation uses an inconsistent identifier. This error halts the cycle. This error is considered as a simple error.
43	Coordinate transformation already on	Error generated during a cycle when a coordinate transformation that is tried to be initialized or set is already on. This error halts the cycle. This error is considered as a simple error.
44	Reference supervision distance Out	Error generated during the reference function when the running distance during the function exceeds the maximum allowed distance . This error halts the function. This error is considered as a simple error.
45	Servo operation error	Error generated by a Servo drive controlled through a field bus. This mentions an operation error occuring during an operation managed by the drive. This error halts the function. This error is considered as a simple error.

46	Expected movement in safety zone detected	Error generated when a movement is expected in an active safety zone. This error halts the function. This error is considered as a simple error.
47	Axis movement forbidden	Error generated when a movement is expected to be started and the axis move forbidden status is active or when the axis is in movement and the axis move forbidden status is activated. This error halts the current movement. When the axis belongs to a running cycle, it also halts the cycle. This error is considered as a simple error.
48	Servo not ready	Error generated when the servo on command is requested on the axis and the servo is not ready (power not on for example). When the axis belongs to a running cycle, it also halts the cycle. This error is considered as a simple error.
49	Servo Fail	Error generated when : - The servo on command is requested on the axis and the servo status checked on the servo is not on after the Servo Delay set on the axis parameters (time-out). - The servo is considered as on on the axis and the servo status checked on the servo fall down. This error halts the current movement. If on, the regulator is set off and the brake is set on When the axis belongs to a running cycle, it also halts the cycle. This error is considered as a simple error.
50	Servo in stop mode	Error generated when the servo switched in stop mode. When the servo switch in this mode, it first generate itself a deceleration ramp and regulates the axis speed at 0. Then no movement can be ordered as long as it stay in this mode. This error halts the current movement. If on, the regulator is set off. When the axis belongs to a running cycle, it also halts the cycle. This error is considered as a simple error.
60	Synchronization message not send	If the system is unable to deliver a synchronization signal, error indicates that the message manager is saturated. This error is considered as a fatal error. It generates a stop of all axes of the system. The secure mode of the system is set on.
61	Synchronization command buffer full	If the system is unable to treat a synchronization signal, the error indicates that the synchronization command buffer is full. This error is considered as a fatal error. It generates a stop of all axes of the system. The secure mode of the system is set on.
62-63	Hardware limit reached	This error indicates that the axis has reached an hardware limit and the respective limit switch has been activated. This error is considered as a fatal error. It generates a stop of all axes of the system. The secure mode of the system is set on.



This table does not contain an exhaustive list of all the errors.
If the message number is not explained here, please write it down and contact your dealer.

BEAM ERROR MESSAGES

MSG NR.	DESCRIPTION	COMMENT
13	Command refused because pinch point is below Y1 and Y2 bottom dead centre	Check the value of the PP correction, and the value of the BDC correction in the User Preference page.
14	Command refused because the speed commutation point is below the pinch point	
15	Command refused because low speed up speed out of limits	
16	Command refused because speed out of limits	
17	Command refused because Bottom Dead Centre Y1 and Y2 are too different	Difference between target values of Y1 and Y2 bigger than the limit value defined in the machine parameter. Call you dealer.
18	Command refused because pinch point is outside stroke limits	
19	Command refused because beam is moving	
20	Command refused because Bottom Dead Centre is outside the beam limits	
26	Command refused because beam is in emergency	For example, beam out synchronism tolerance.
27	Command refused because Synchronism controller parameters not in range	Problems with limit parameters (max and min) of the beam. Contact your dealer.
28	Command refused because stop is active	
37	Command refused because zero has not been found yet	Beam is not indexed.
40	Command refused because bend data have never been loaded	
44	Command refused because beam is in emergency. Only a manual down of the upper axis is allowed	Only the axis with the highest position is allowed to be moved manually down.
49	Command refused because beam is not at high end of stroke position	
52	Command refused because the beam is requested to go to TDC	
53	Command refused because a beam cycle is not running	
248	Synchronism limit reached, Y1: {0} Y2: {1}	Height difference between Y1 and Y2 bigger than the limit value defined in the machine parameter. Call you dealer.
265	Error with Oil Leakage Control. Cancelling operation	
267	Beam not indexed, no move	
606	High speed down stopped by safety speed switch	
607	Command refused because other command still active	Order of priority is as follows : 1. Stop Command 2. Go to TDC MAX 3. Go to next TDC 4. Up command 5. Down command



This table does not contain an exhaustive list of all the errors related to beam.
 If the message number is not explained here, please write it down and contact your dealer.

RESOURCES

TUTORIALS - VIDEOS

Visit our Web site .

<https://cybelec.ch/videos/>

Please subscribe to our YouTube channel to have our latest videos and tutorials.



https://www.youtube.com/channel/UCLBu-RxCGGf_epuHtMwoAcQ



Don't forget to click on the ring bell button to stay in touch!

Please, let us know if you have any suggestion at support@cybelec.ch

Numerical control

VisiTouch Pac VisiTouch Pac MX

VisiTouch Pac is an outstanding numerical control for press brakes with a new solution all-in-one:

- Semi-compact control with a 19" modern streamlined glass surface full touch-screen and the CNC board mounted on the back of the screen.
- Full digital up to 24+2 electric axes with two CANopen® and one EtherCAT® field buses with wide configuration capabilities.
- Interface to all kind of hydraulic systems, I/O and analogue axes thanks to the CybMVA modules placed inside the electrical cabinet.



VisiTouch Pac numerical controls are available in two versions:

- VisiTouch Pac with 2D graphical profile drawing (Touch Profile) and 3D visualization
- VisiTouch Pac MX with import, program, visualization and simulation, all in 3D.

In addition to all the features available to control simple as well most sophisticated press brakes, hydraulic, electrical and hybrid, VisiTouch Pac offers also an open system allowing customization to be up to the Industry's 4.0 production management requirements.

Main features

For the User

Modern streamlined glass surface touch screen that can be used with gloves.

User-friendly HMI thanks to intuitive programming.

All kinematics available:

- For X, Xrelatives, Xslave, R, Rslave, and Z axes.
- For Back and Front multiples gauges.
- For bending aids.

Highest precision of bending thanks to sophisticated algorithms.

Tandem.

Tools import.

Group management for complex production.

Preliminary / Final bend.

Hemming management.

Running under Windows 10 for multitasking and networking.

Angle measurement.

Barcode reader.

Customizable Industry 4.0.

For the OEM:

Set up with dedicated wizards (auto-tuning).

Axis control through CANopen® and EtherCAT® with wide configuration capabilities.

Customizable User Buttons for the machine operator.

Open system for customization.

Interactions with the beam through specific cycles to manage hybrid and electric press brakes.

Dynamic and regulated crowning cycles.

Plug-in for HMI part.

Communication protocol with arm robots for press brakes applications.

Technical Characteristics – VisiTouch Pac and VisiTouch Pac MX

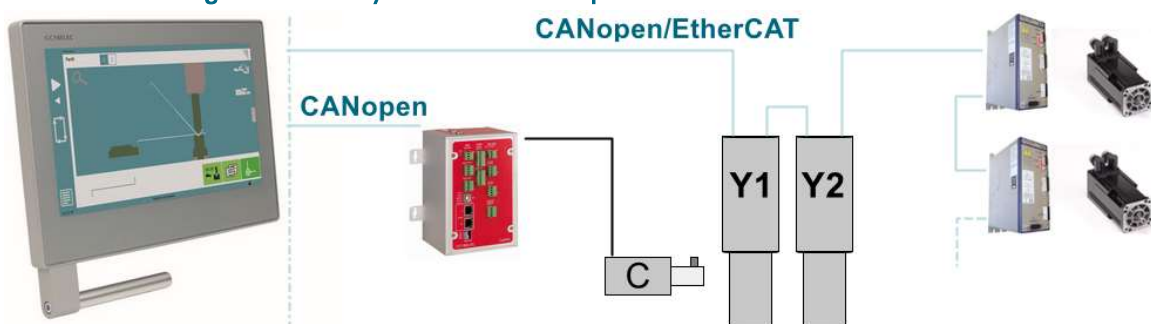
Display	
TFT screen	18.5" wide TFT 16:9
Resolution	1366 x 768, 24 bits (WXGA)
Touch screen	Glass PCAP Multi-touch 10 fingers
Seal	IP65 - front side only
Handle	Included
Operating conditions	Min. 5° Celsius, max. 40° Celsius. If the ambient temperature approaches or exceeds 40° Celsius, it is advisable to install special ventilation, or even air-conditioning. Relative humidity (10 to 85% non-condensing).
EC Directives	IEC 61131-2

		CNC board 2D	CNC board 3D (MX)
Operating System		Windows 10	
Processor Unit	Model	Intel® Atom x5-E3940 Quad-Core @1.6GHz	Intel Atom x7-E3950 Quad core @1.6GHz
	Graphic	Intel® HD Graphics 500	Intel Gen 9LP Graphics
	RAM	4 GB DDR RAM	8 GB DDR RAM
	Cooling	Passive Heat sink, FAN less	Passive Heat sink, FAN less
Mass Storage	Capacity	32 GB CFAST memory card SATA 16 GB eMMC	
Display Interface		DVI	Up to 1920x1600, single-link DVI-D interface
		LVDS	Up to 1920x1200, dual channel LVDS mode 18bpp or 24bpp
Communication		LAN	1x Gigabit Ethernet, RJ-45(10/100/1000)
		USB	4x USB (1x USB 3.1, 3x USB 2.0) 1x USB 2.0 (dedicated to local Touch-Screen)
		COM	1x RS-232C/RS-485 (D-sub 9-pin male, Data flow 115kbps)
		Wi-Fi	USB compatible
		4G-5G	USB compatible
Operating temperature		0 - 40°C	
Power Supply (Numerical Control)		+24V _{dc} @0.8A typ.(CN without I/O – X1 connector)	
Power Supply (Digital I/Os)		+24V _{dc} @ 20A max.	
RTC – Calendar Clock		Battery	Lithium CR2032 / 3V @225mA/h
I/O Processor		ARM Cortex M7 series – STM32F765 @216MHz	
Digital Input		6	4mA typ. according to IEC61131-2 type 1 & 3 Isolation 2kV Filtering – debouncing and deglitching (by step of 250μs)
Digital Output		4	0.5A typ. /0.7A max. according to IEC61131-2 type 3 Isolation 2kV Overvoltage and Short circuit protection Status – output in fault and no 24V IO power supply
Fieldbus Interface		2 CANopen	1Mbps CAN 2.0 A, RJ-45, CANopen Master/Slave
		1 EtherCAT	100Mbps EtherCAT, RJ-45, Master Stack

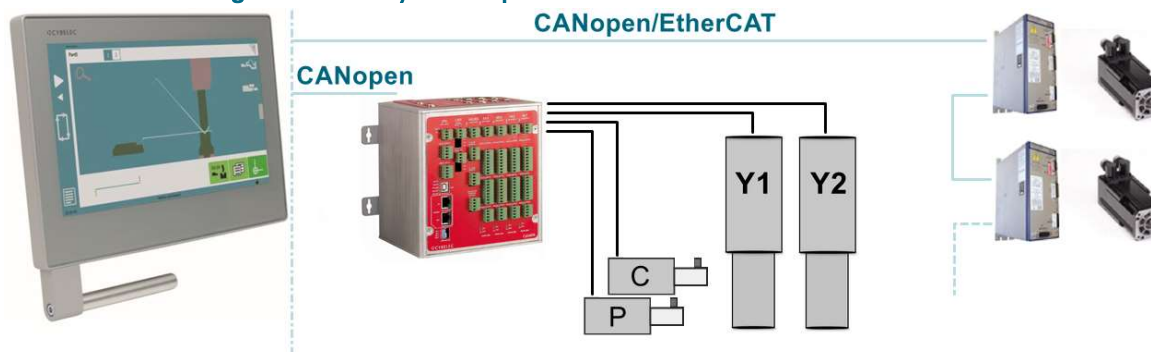
Extras	
CANopen Compatible Drives	Baumüller, Delta Electronics, Infranor, INVT, Schneider, etc.
Ethercat Compatible Drives	Delta Electronics, Infranor, Kollmorgen Europe GmbH, OMRON, Panasonic, Yaskawa Electric, SanyoDenki Co., etc.
Safety Systems Compatibilities	Fiessler, LazerSafe, Nuova Elettronica, Pilz, etc.
Angle Measurement Systems	Protractors: IBR, Mitutoyo DMX, Mitutoyo U-wave Real time Systems: DataM LaserCheck, Lazer Safe IRIS+, Wenglor, etc.
Tool Locators	WILA Smart Toll Locator, PB Service, etc.
Languages	Chinese (simplified and traditional), Czech, Dutch, English (reference language), Finnish, French, German, Italian, Polish, Portuguese (Brazil and Portugal), Russian, Slovenian, Spanish, Swedish, Turkish.

Typical machine configurations – VisiTouch Pac controls and CybMVA modules

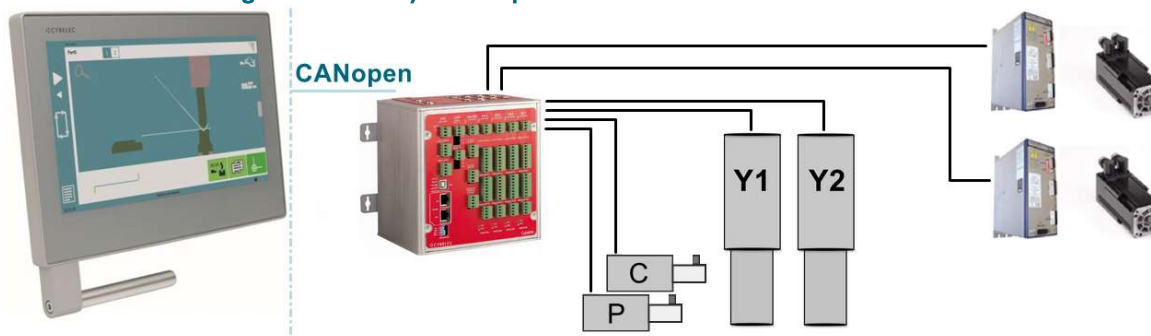
FULL DIGITAL axes configuration for hybrid and electric press brakes



DIGITAL electric axes configuration for hydraulic press brakes

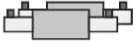
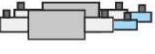


ANALOG electric axes configuration for hydraulic press brakes



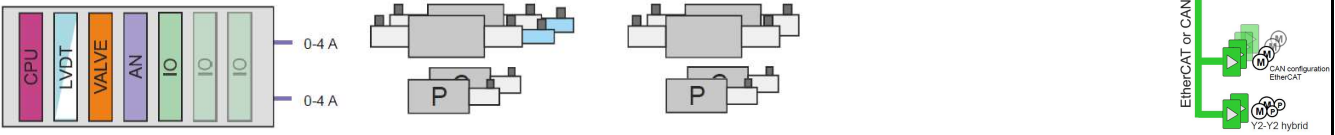
CybMVA modules configurations

For detailed technical characteristic, please refer to the CybMVA datasheet. For machines with more than 4 axes, any additional electric axes on the CybMVA modules require an additional axis license on the VisiTouch Pac.

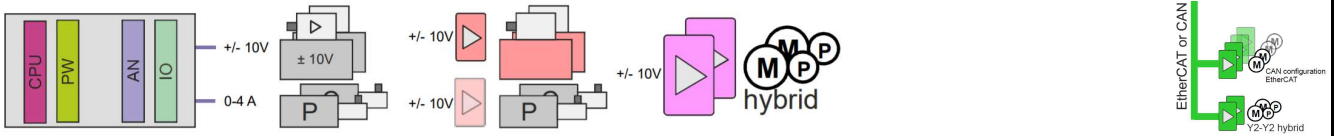
	prop. valve without feedback		Pressure valve Crowning valve
	prop. valve with feedback		MVP 100/A (valve amplifier)
	prop. valve with integrated amp. (+/- 10V analog command)		MSV 402/A (servo-valve amplifier)
			servo-valve 50-300 mA

For machines with digital axes (EtherCAT or CANopen)

Y1, Y2 amplifier for proportional valves with and without feedback and I/O

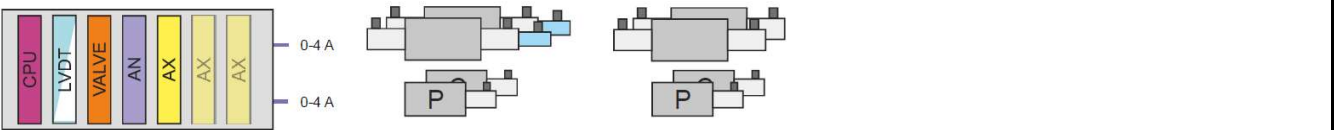
									
CybMVA	Y1-Y2	Digital In	Digital Out	Analog In	Analog Out	Enc In	Y (4A)	P+C (4A)	LVDT
MVA-FD2	Yes	19	19	4	4	2	4	2	2

Y1, Y2 (+/-10V) with proportional valves with integrated Amplifier/Servo Valves/hybrid machines and I/O

									
CybMVA	Y1-Y2	Digital In	Digital Out	Analog In	Analog Out	Enc In	Y (4A)	P+C (4A)	LVDT
MVA-AD2	Yes	19	19	4	4	2	-	2	-

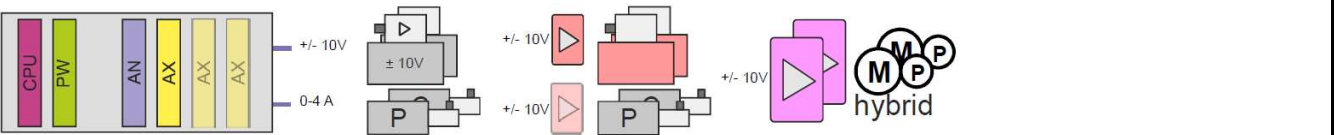
For machines with proportional valves and analog axes

Y1, Y2 amplifier for proportional valves with and without feedback and 2/4/6 analog axes

									
CybMVA	Axes	Digital In	Digital Out	Analog In	Analog Out	Enc In	Y (4A)	P+C (4A)	LVDT
MVA-FA4	(Y1-Y2 +2)	11*	11*	4	6	4	4	2	2
MVA-FA6	(Y1-Y2 +4)	19	19	4	8	6	4	2	2
MVA-FA8	(Y1-Y2 +6)	27	27	4	10	8	4	2	2

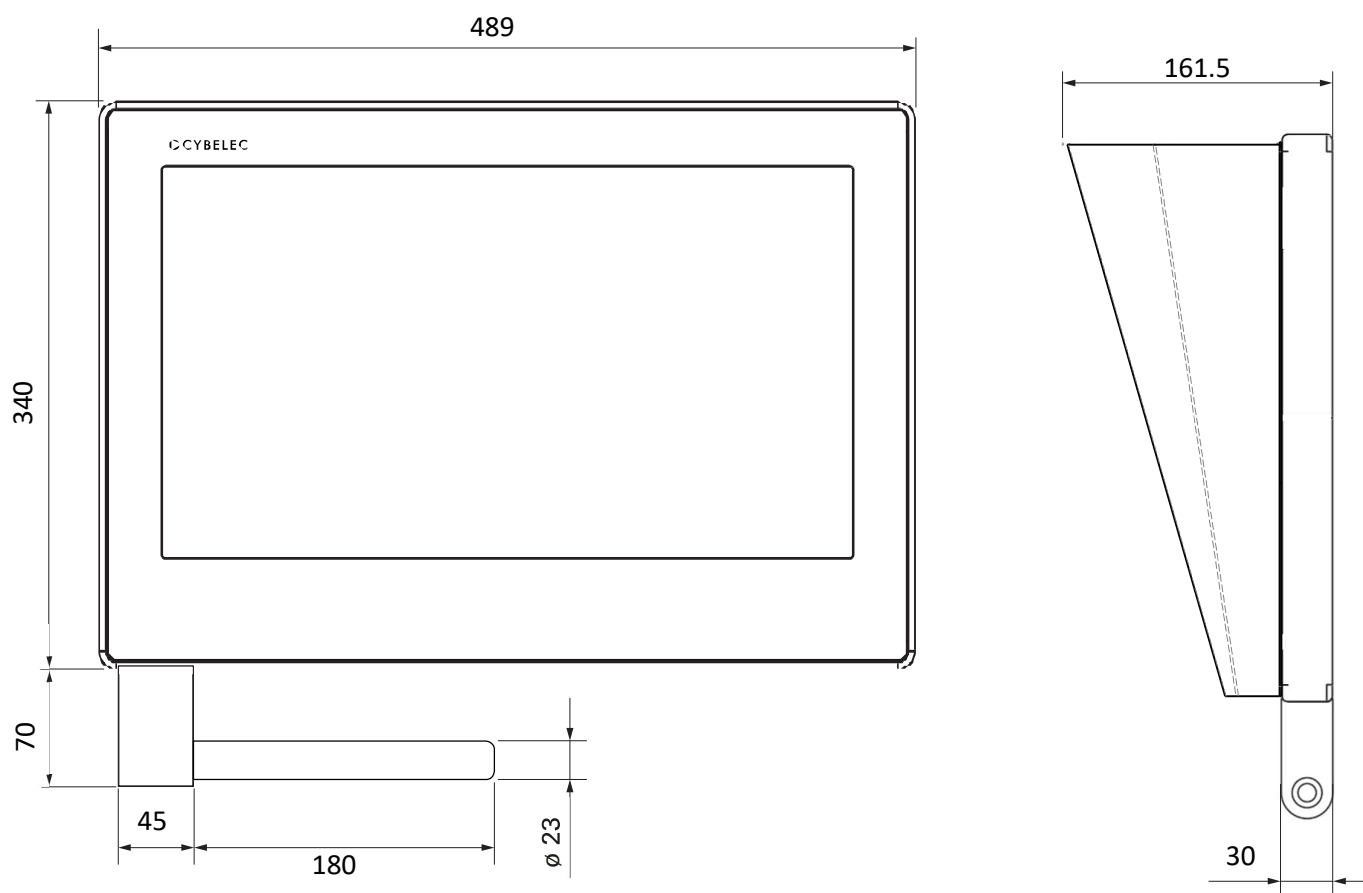
For machines with proportional valves with integrated amplifier / Servo-Valves / Hybrid and analog axes

Y1, Y2 (+/- 10V) and 2/4/6 Analog axes

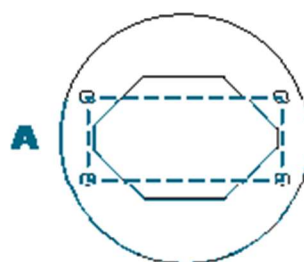
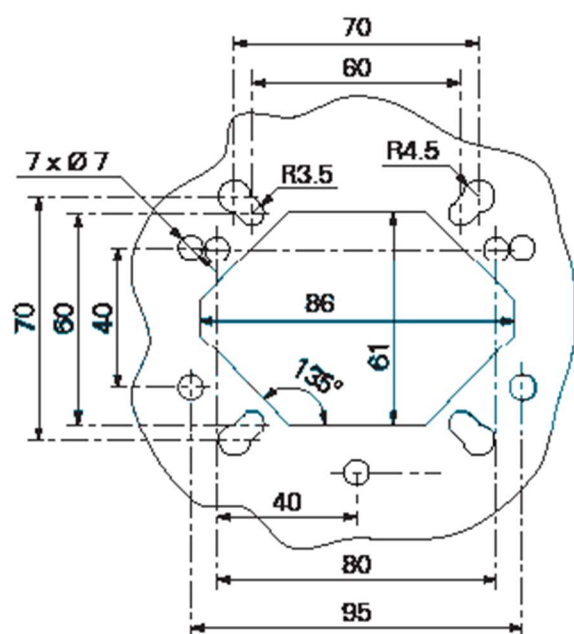
									
CybMVA	Axes	Digital In	Digital Out	Analog In	Analog Out	Enc In	Y (4A)	P+C (4A)	LVDT
MVA-AA4	(Y1-Y2 +2)	11*	11*	4	6	4	-	2	-
MVA-AA6	(Y1-Y2 +4)	19	19	4	8	6	-	2	-
MVA-AA8	(Y1-Y2 +6)	27	27	4	10	8	-	2	-
MVA-AA10	(Y1-Y2 +8)	35	35	4	12	10	-	2	-

Dimensions

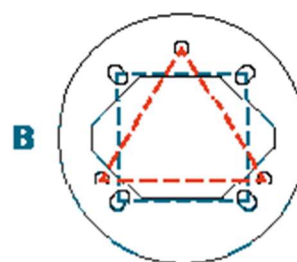
Housing Version



Attachment dimensions



40 x 95

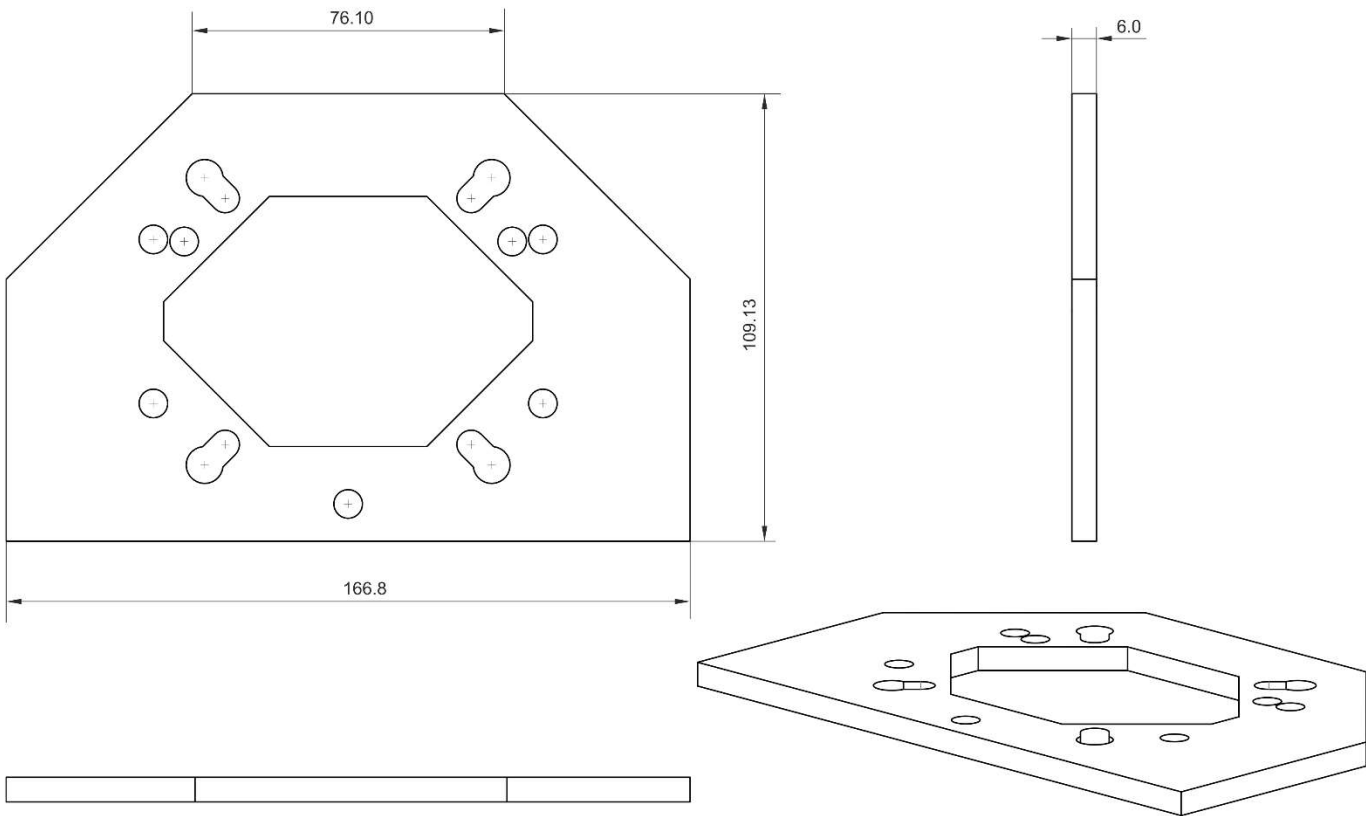


60 x 60 or 65 x 65

80 x 80 x 80

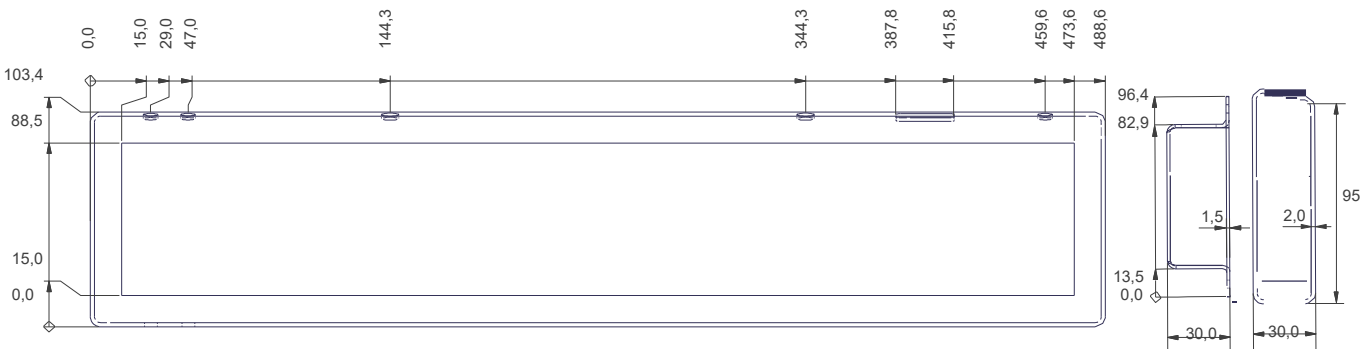
Two adapters are provided.
Stick the appropriate one on top of the box.

ALU spacer for VT and VP fixing dimensions



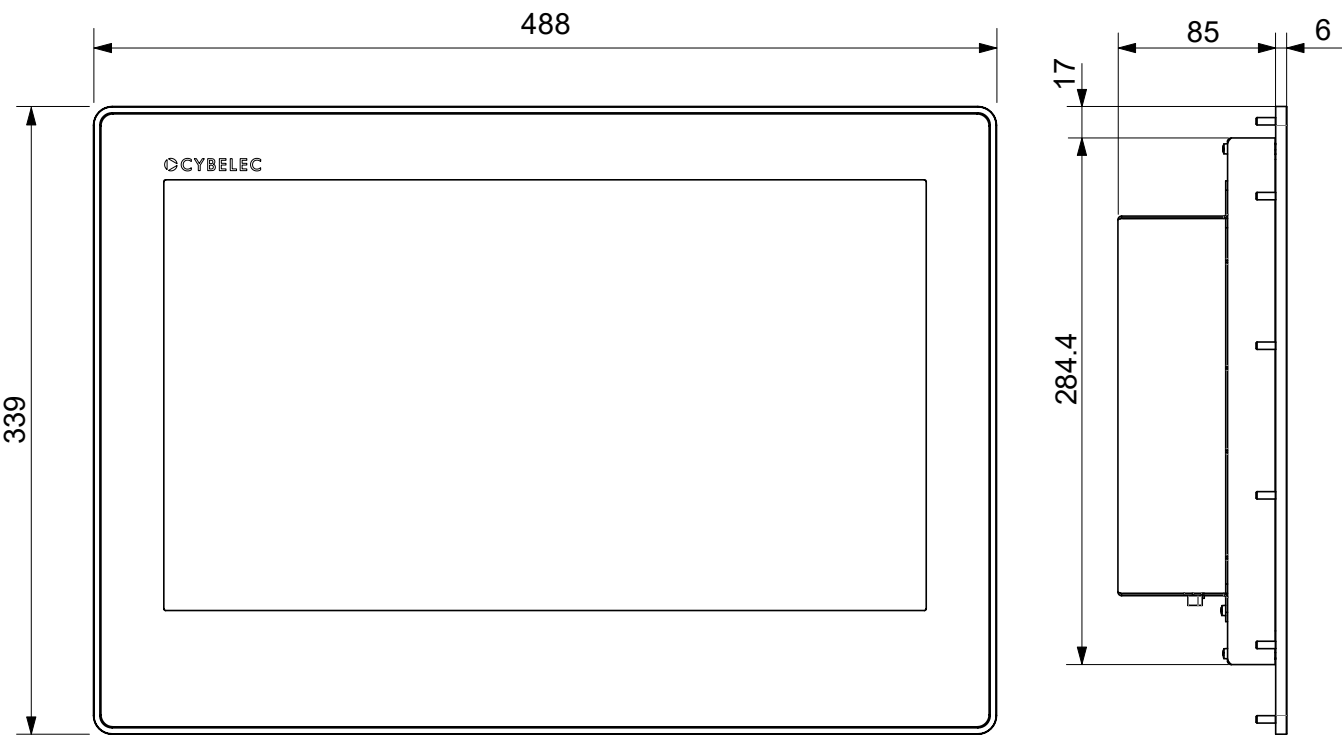
Dimensions

Auxiliary box

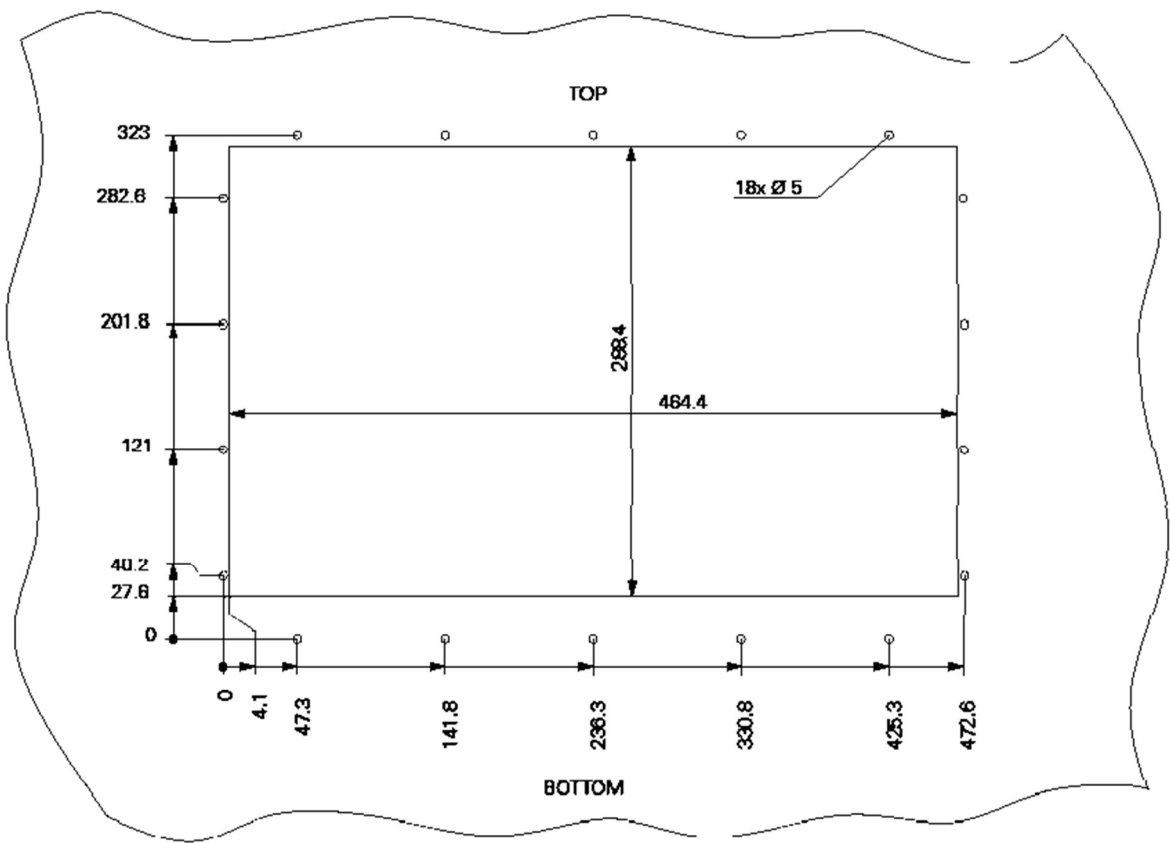


Dimensions

Panel version



Integrating opening dimensions



Ordering information

VisiPac controls

VSP-84PS-2	VisiTouch Pac, 4 axes (Y1, Y2, 2 axes), PS-2D
VSP-84PS-2	VisiTouch Pac, 4 axes (Y1, Y2, 2 axes), PS-2D, panel version
VSP-84PS-MX	VisiTouch Pac MX, 4 axes (Y1, Y2, 2 axes), PS-3D
VSP-84PS-MX/P	VisiTouch Pac MX, 4 axes (Y1, Y2, 2 axes), PS-3D, panel version
VSP-84PS-MXIMP	VisiTouch Pac MX, 4 axes (Y1, Y2, 2 axes), PS-3D and import
VSP-84PS-MXIMP/P	VisiTouch Pac MX, 4 axes (Y1, Y2, 2 axes), PS-3D and import, panel
	All controls with RJ45 wire 7.5m (SFTP CAT 5E) included
	The software is configurable with below options
	Accessories
S-OPT-BTAUX-S/E	Auxiliary box
UPS-DP1	UPS system with battery, 24V DC, 3A
M-300-0013B	ALU spacer for VT and VP fixing

Software options

OFT-AX	Additional axis license
OFT-TM	Tandem management
OFT-BA	Bending aids and sheet support (require axes licenses)
OFT-SS	Sheet support (require axes licenses)
OFT-AM1	Automatic angle measurement (one station)
OFT-AM2	Automatic angle measurement (two stations)
Included	Protractor Angle
OFT-AT	Automatic thickness measurement
OFT-FS	Force sensor management
OFT-SC	Special crowning cycle (user cycle file added by customer)
OFT-TL	Tool locator
OFT-SB	Plugin for communication with Lazer Safe Smart Brackets
OFT-RCG	Plugin for comm. with arm robot (incl. OFT-BA and OFT-SS)
OFT-RCA	Robot control, Cartesian XYZAC (includes 5 axes licenses)
OFT-RAS	STEP Arm Robots control interface

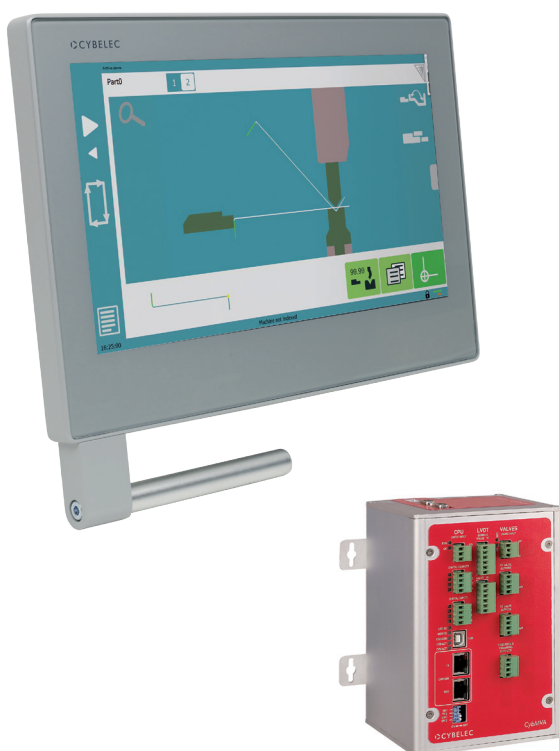
OFT-BC	Plugin for communication with Barcode reader, generic
OFT-ST	Statistics
OFT-I4M	Industry 4.0, statistics, status (MES), communication (MES)
OFT-VA	AutoPOL CAM Viewer
OFT-PG	Authorization for plugin installed by customer
OFT-IMP	MX Import license, DXF flat, SW, IGES, STEP, SAT, X_T

PC offline software

OFT-VST-2	PC offline software VisiTouch (2D)
OFT-VST-MX	PC offline software VisiTouch MX
OFT-VST-MXIMP	PC offline software VisiTouch MX including Import
OFT-IMP-SLDPRT	SolidWorks import license, requires OFT-IMP license
OFT-EXP	DXF export license



Intuitive Programming



VisiTouch Pac is an outstanding numerical control for press brakes with a new solution all-in-one:

- Surface Full Touch-screen and the CNC board mounted on the back of the screen.
- Full digital with CANopen[®] and EtherCAT[®] field buses controlling many axes
- unique experience with 2D graphic profile drawing (Touch Profile) and 3D viewer thanks to a new quadcore processor unit.
- Interface to all kind of hydraulic systems, I/O and analog axes thanks to the CybMVA modules placed inside the cabinets.

In addition to all the features available to control simple as well most sophisticated press brakes, hydraulic, electrical and hybrid, VisiTouch Pac offers also an open system allowing customization to be up to the Industry's 4.0 production management requirements.

Main features for the user

- Modern streamlined glass surface touch screen that can be used with gloves.
- User friendly HMI, thanks to intuitive programming.
- 2D graphical profile drawing (Touch Profile) and 3D viewer
- Automatic bending sequence calculation.
- Highest precision of bending thanks to sophisticated algorithms.
- Tandem
- Tools import.
- Group management for complex production.
- Preliminary / Final bend.
- Hemming management.
- Running under Windows 10 for multitasking and networking.
- Angle measurement.
- Barcode reader
- Customizable Industry 4.0

Main features for the OEM

- Set up with dedicated wizards (auto-tuning).
- All kinematics available:
 - For X, Xrelatives, Xslave, R, Rslave, and Z axes.
 - For Back and Front multiples gauges.
 - For bending aids.
 - Up to 26 axes.
- Axes control through CANopen[®] and EtherCAT[®] with wide configuration compatibilities.
- Customizable User Buttons for the machine operator.
- Open system for customization.
- Interactions with the beam through specific cycles to manage hybrid and electric press brakes.
- Dynamic and regulated crowning cycles.
- Plug-in for HMI part.
- Communication protocol with arm robots for press brakes applications.

Ordering information

- VisiTouch Pac basic configuration with 4 axes (Y1, Y2, 2 axes), PS-2D software and 3D viewer is configurable with many software options.
- CybMVA configurations available for all kind of press brakes with:
 - Digital or analog electrical axes.
 - Proportional valves with or without feedback.
 - Servo-valves
- VisiTouch PC offline software available for VisiTouch Pac:
 - 2D OFT-VST-2
 - 3D OFT-VST-MX
 - 3D+import OFT-VST-MXIMP



**Easy operating,
better bending and
powerful features
characterize
VisiTouch Pac**

