ELECTRONIC
MULTI-MARK MACHINE
INSTRUCTIONS MANUAL

TABLE OF CONTENTS

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

1. PRESENTATION AND GENERAL POINTS

1.1. General Points

The MULTI-MARK marking machine has been designed taking current EEC safety regulations into account.
The safety of the personnel involved in the handling of this type of machine can only be achieved with a well-designed personal safety programme. This involves the introduction of a maintenance programme and the following of certain recommendations, together with compliance with the safety regulations mentioned in this manual.

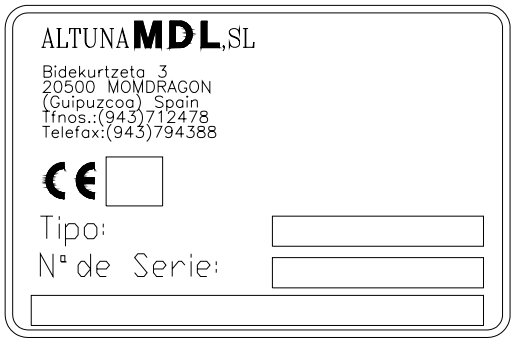
Although the installation of the machine is straightforward, we recommend that you should not try to install, adjust, or operate it without first reading this manual.
The machine leaves the factory ready for use. All that is required is that the tools fitted onto it are properly calibrated. Follow the steps below to ensure the machine functions correctly and optimally:

- *Observe and follow the procedures indicated on the machine.*
- *Always use original JMA tools and spare parts.*
- *Use original JMA metallic keys (steel, aluminium, brass, alpaca, etc.) to ensure high-quality dimensional results.*

Any use other than that stated in his manual will automatically result in the customer waiving all their rights to compensation from JMA, and will not be considered under the terms and conditions of the warranty. Furthermore, the incorrect use of the machine may endanger the operator and other people.

1.2. Identification plate

The MULTI-MARK marking machine bears the following identification plate, which specifies the serial number, name and address of the manufacturer, EC mark, and the year of manufacture.



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

1.3. Protective and safety devices

The MULTI-MARK machine conforms to the Machines Directive. Compliance with the general safety guidelines and the instructions stated in this manual removes any possibility of human error, apart from intentional error.

- *Mains supply*

The machine is connected to the mains supply by a plug with an earth wire and a differential switch.

- *Switching the machine on*

The rear switch is used to switch the machine on

- *Marking*

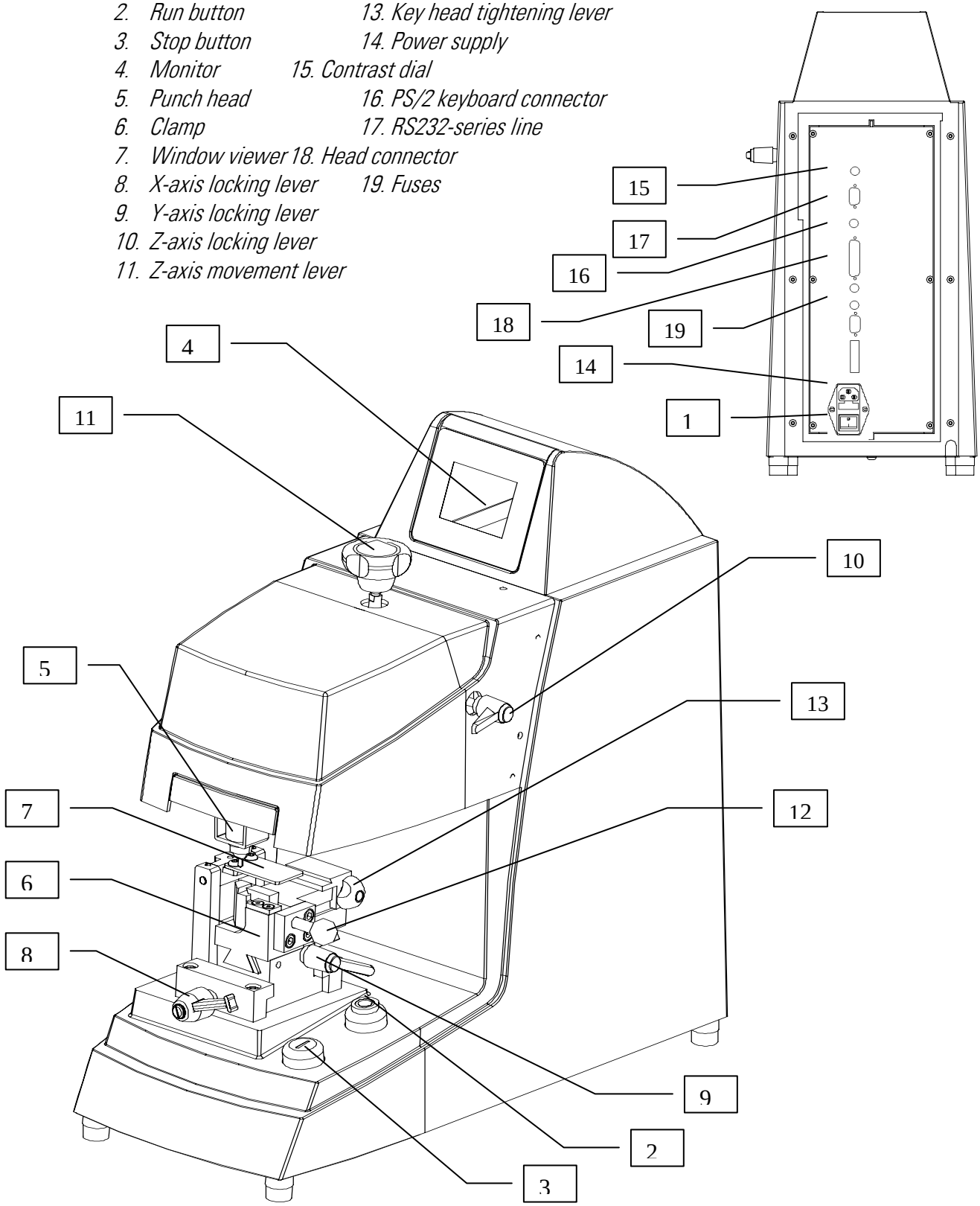
The punch does not represent any direct risk whatsoever to hands or arms. The marking area should always be cleared, however, before pressing the marking button.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

2. MACHINE CHARACTERISTCIS

2.1. Main elements

1. On switch
2. Run button
3. Stop button
4. Monitor
5. Punch head
6. Clamp
7. Window viewer
8. X-axis locking lever
9. Y-axis locking lever
10. Z-axis locking lever
11. Z-axis movement lever
12. Key ridge tightening lever
13. Key head tightening lever
14. Power supply
15. Contrast dial
16. PS/2 keyboard connector
17. RS232-series line
18. Head connector
19. Fuses



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

2.2. Technical data

Mains supply: 230V 50Hz 200W
110V 60Hz 200W

Punch: Tempered steel

Head: Reel or pneumatic

Marking speed:

Texts: up to 8 character(s) with head with reel
up to 15 character(s) with pneumatic head

Drawings: up to 128 percussion(s) with head with reel
up to 240 percussion(s) with pneumatic head

Marking force: variable force in reel and variable timings in pneumatic head

Clamps: for flat keys
for plates
for cylinder locks

Movement: two belt-driven axes

Maximum markable area: 70mm x 50mm

Display: LCD, 55mm x 38mm

Memory: up to 126 files featuring 20 lines with 20 characters
up to 96 logos via RS232

Dimensions: width: 200 mm
length: 480 mm
height: 480 mm

Weight: 20 kg

Keyboard: Standard

Connectors: RS-232-series line
PS/2 keyboard input

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

2.3. Main specifications

GENERAL SPECIFICATIONS

- *Graphic display*
- *Language selection: Spanish, English, Italian, French, German and Portuguese.*
- *Storage of marking files: 126 files featuring 20 lines with 20 characters*
- *Storage of logos: up to 96 logos via RS232*
- *Maximum marking speed of up to 15 characters per second with air markers and up to 8 characters per second in markers fitted with a reel.*
- *Built-in keyboard cover*
- *Regional configuration for connection to external keyboard.*

MARKING FILE SPECIFICATIONS

- *5 variable text marking modes for each line of a file: straight horizontal line marking, straight angled line marking, outer arch marking, inner arch marking and centred straight horizontal line marking.*
- *Matrix with characters of 5 x 7 dots, 9 x 14 dots or matrices with adjustable spacings between dots (0.05 mm, 0.10 mm, 0.15 mm and 0.20 mm).*
- *Adjustable (0.5 mm – 20 mm) or automatic character width.*
- *Adjustable character height (1 mm - 20 mm).*
- *9 marking speeds.*
- *Punch control: variable force in reel and variable timings in pneumatic head*
- *Marking test in edit mode*
- *Empty run in edit mode*

ELEMENTS IN A MARKING FILE

- *Calendar: hour, minutes, day of the month, month, year (2 digits), year (1 digit), day of the year, week of the year, day of the week. Adjustable configuration of the week from 1 January.*
- *Shifts: configurable from Monday to Sunday.*
- *Numerical series: configurable increase, decrease and repetition.*
- *Logo options stored in memory: can be magnified up to eight times.*
- *Internal datamatrix: squared matrix 26 x 26 (40 characters), rectangular matrix 12 x 36 (20 characters). Adjustable spacing between dots.*
- *Special symbols: + - / \ < > = ^ { } ( ) [ ] _ | ¿ ? ¡ ! " ' , . : ; Δ Λ α β Ω φ μ Ñ ñ Ç ç Å å Ä À Á Â ä à á â Ë È É Ê ë è é ê Ï Ì Í Î ï ì í î Ö Ò Ó Ô ö ò ó ô Ü Ù Ú Û ü ù ú û Ã ã Õ õ ª º ~ @ £ $ % & € * # Ø*

MARKING SPECIFICATIONS

- *Continuous marking or marking with control of number of parts.*
- *Automatic or manual marking*
- *"Busy" relay activation during marking.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

3. INSTALLING THE MACHINE

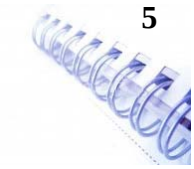
3.1. Unpacking the machine

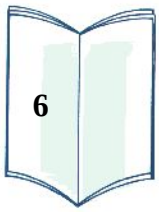
The machine is packed inside a box with the following dimensions:
Width = 600 mm, length = 600 mm, height = 550 mm
Weight of the machine plus packaging = 25 kg.

The machine must be transported upright in its original packaging. Keep the packaging in case the machine has to be transported for distances over which it is not possible for two people to carry it.
When unpacking the machine, inspect it carefully for any damage caused during transit. If you find any damage, notify the haulier immediately and do not touch the machine until the haulier's agent has carried out the corresponding inspection.

3.2. Accessories

When unpacking the box make sure the following accessories are inside along with the machine.





1. *Power supply cable*
2. *Set of Allen keys (2.5, 3)*
3. *Set of fuses*
4. *RS232 series cable*
5. *Windows manual*
6. *Manual*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

3.3. Installation

The machine is assembled, calibrated and checked in the factory of Altuna MDL. To ensure the machine operates correctly position the MULTI-MARK on a flat, stable surface able to bear the weight of the machine. Make sure there is enough space around the machine for the operator to work in comfortably. The following checks should be made before switching the machine on for the first time:

- *Check that the rear connector on the head is properly connected.*
- *Connect the MULTI-MARK machine to the suitable supply voltage, according to the data on the identification plate on the front of the machine.*
- *It is essential that the electrical system at the premises is connected to earth and is also fitted with a differential safety device. Make sure the machine is connected to earth.*
- *After pressing the on button the JMA logo will appear. The machine conducts an internal test a few seconds later before the machine switches to the main menu one second later.*

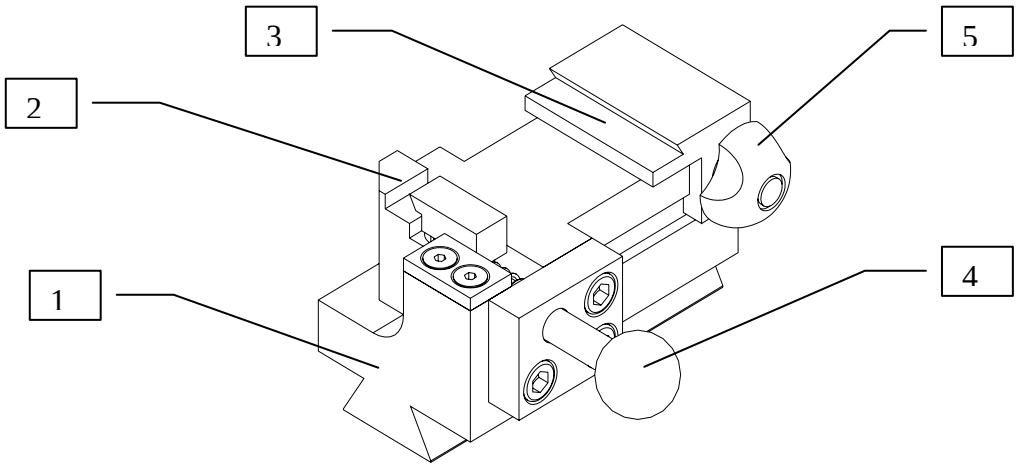
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

4. INITIAL SETTINGS

4.1. Clamps

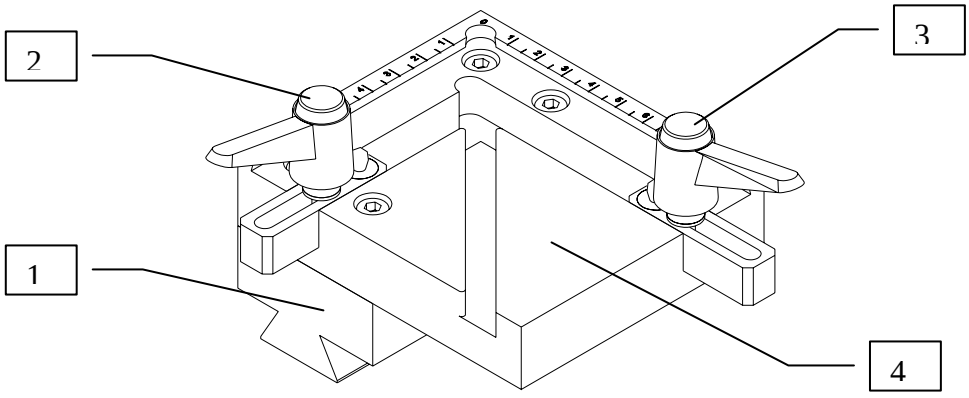
Three different clamps can be fitted onto the MULTI-MARK machine.

4.1.1 Key clamp



1. Main slide
2. Key ridge stop
3. Key head stop
4. Ridge stop adjuster knob
5. Head stop adjuster knob

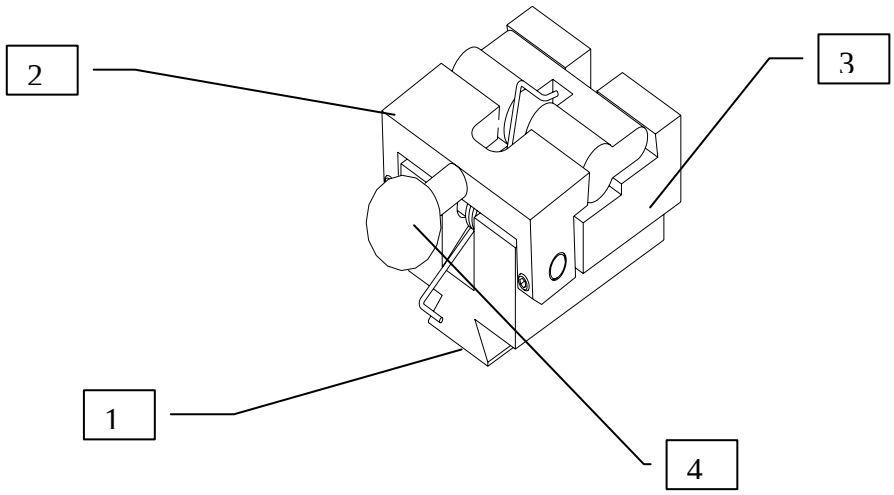
4.1.2 Plate clamp (optional)



1. Main slide
2. Tightening lever
3. Tightening lever
4. Plate base

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

4.1.3 Cylinder lock clamp (optional)

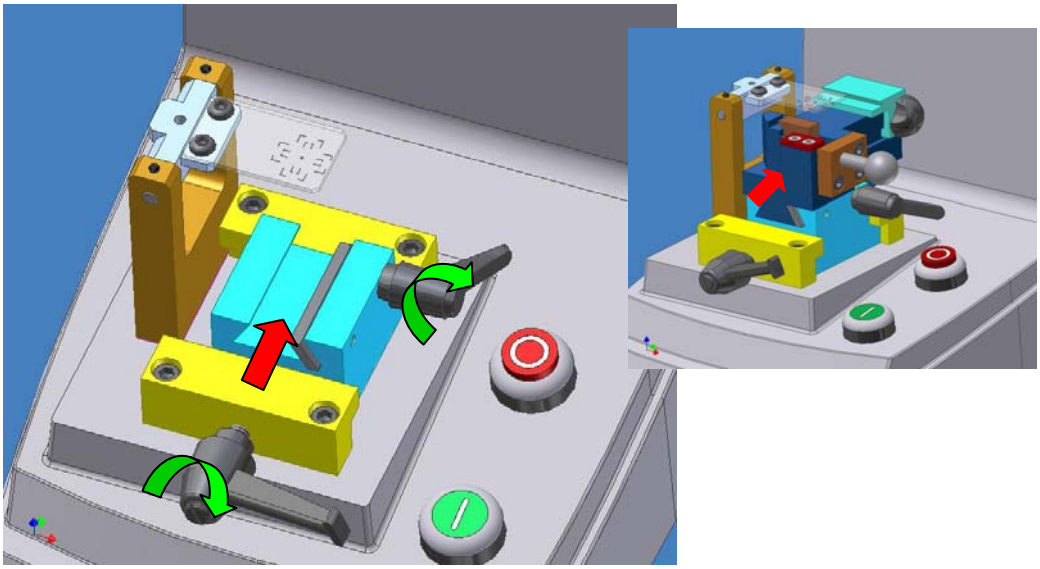


1. Main slide
2. Cylinder lock adjuster knob
3. Cylinder lock base
4.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

4.2. Fitting the clamp in the machine

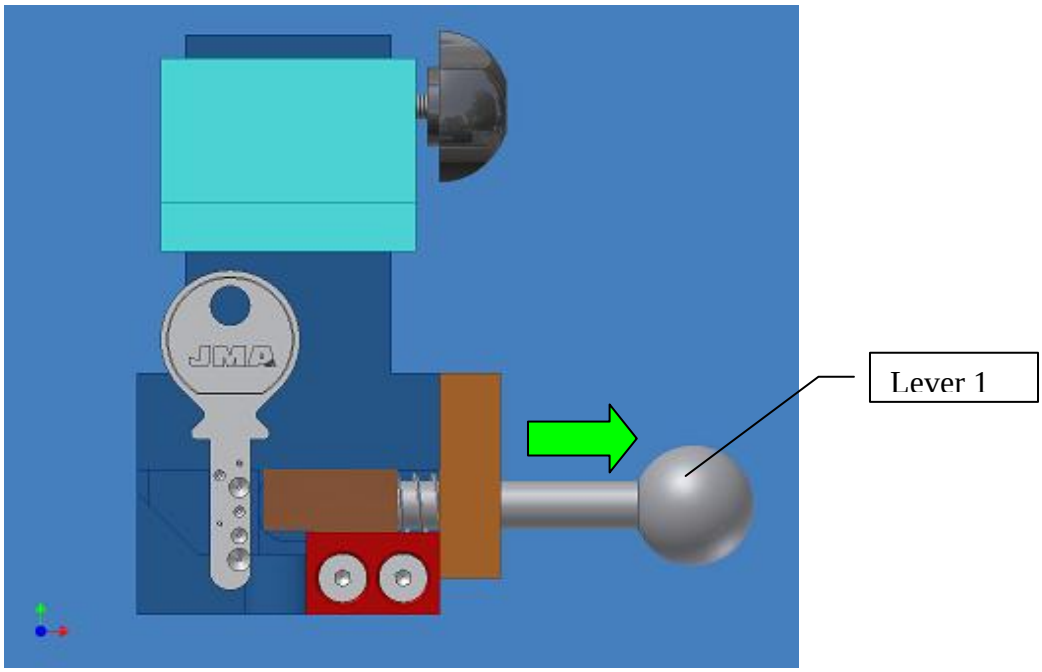
The clamp is fitted in the same way on all models:



- *Insert the clamp into the dovetail housing as indicated by the red arrow.*
- *Position the clamp so that is centred in relation to the window viewer.*
- *Tighten the levers in the direction of the green arrows.*

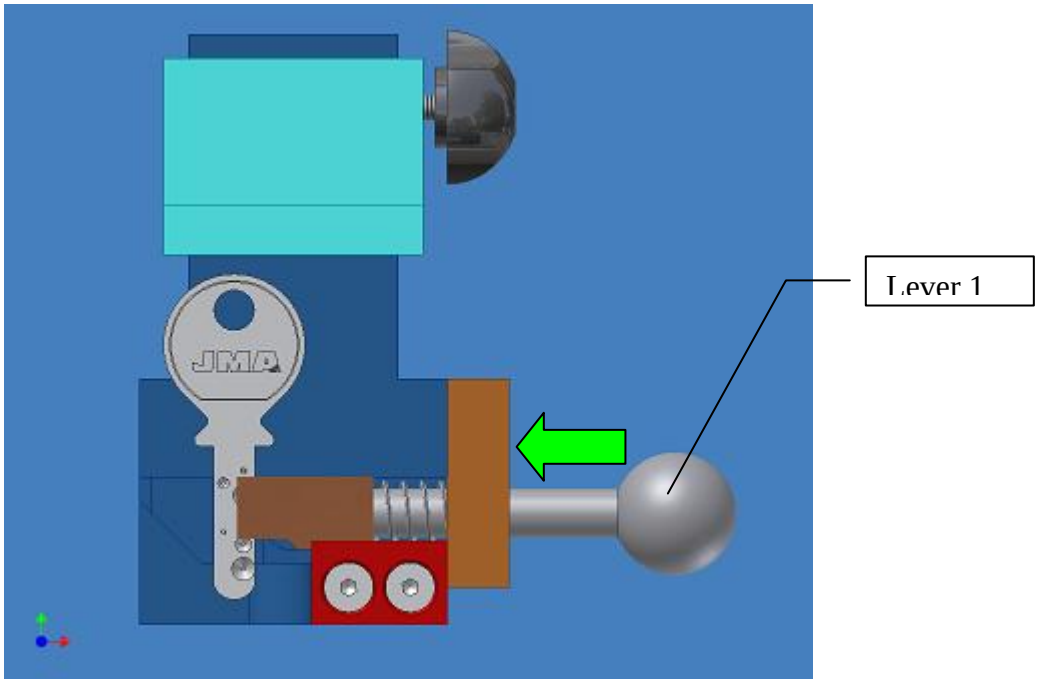
4.3. Fitting the keys

- *Pull lever 1 outwards and position the key as shown in the drawing.*

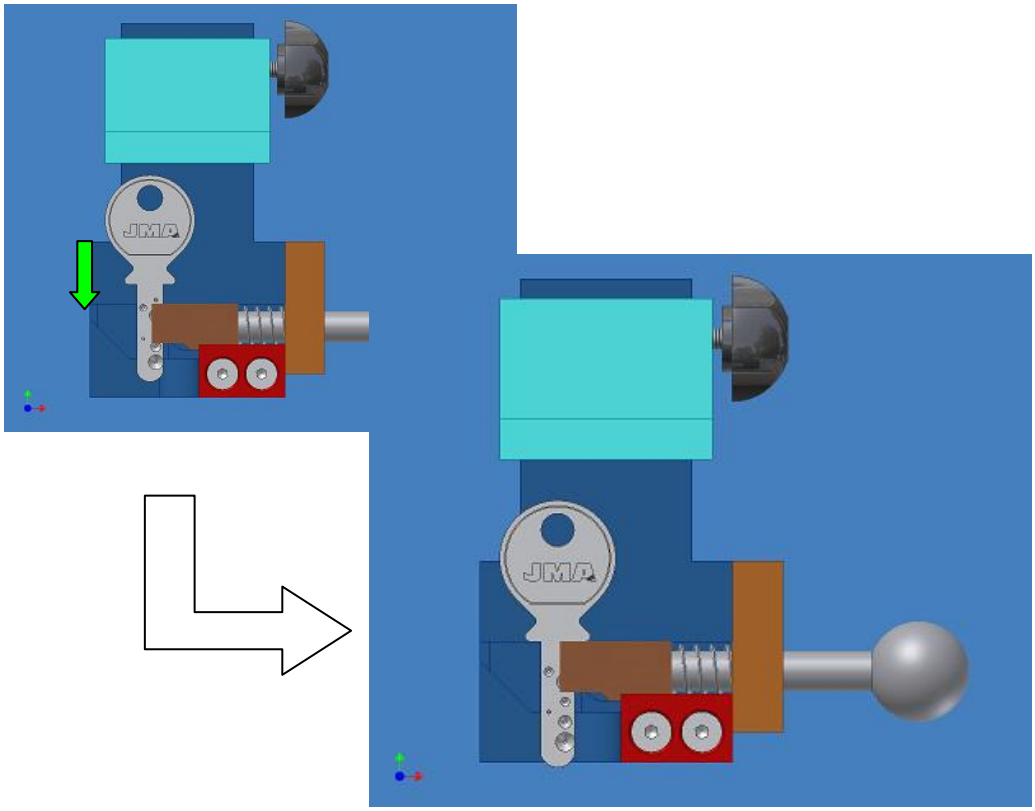


Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *Push the lever 1 inwards.*

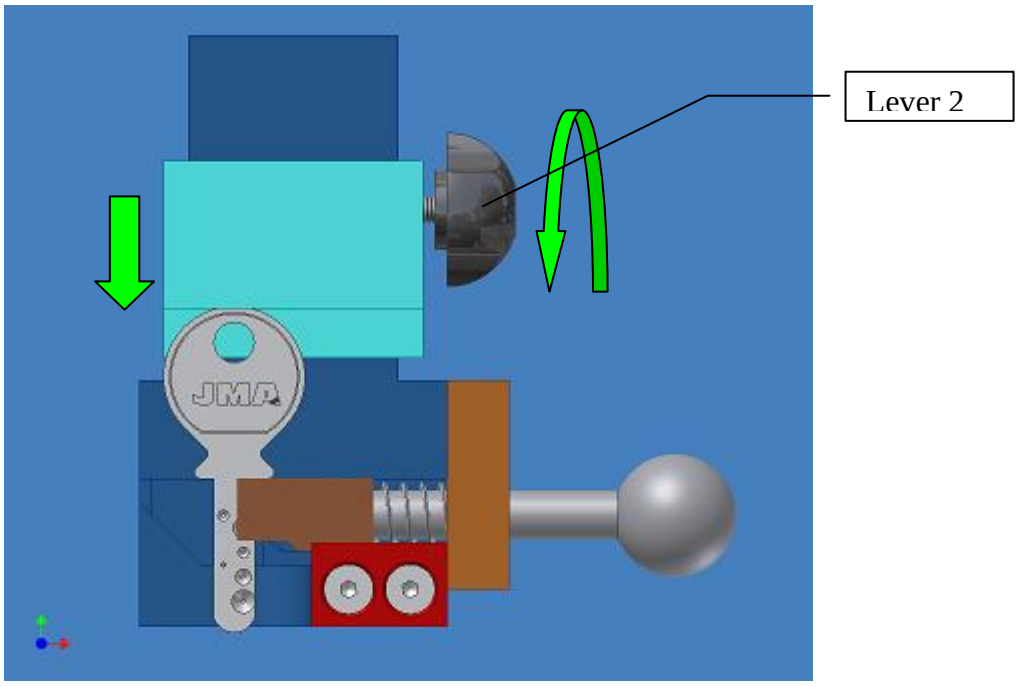


- *Fit the neck of the key against the neck of the clamp.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *Loosen the lever 2 and move the mobile part until it is tight against the key.*

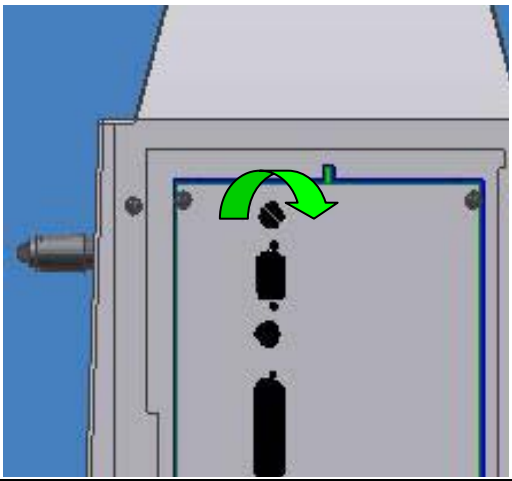


- *Tighten the lever 2 by rotating it in the opposite direction.*

> *Make sure that the key is properly secured in the clamp. If it is not it may be marked in the wrong place or the marking may be faulty.*

4.4. Adjusting the screen contrast

- *Turn the CTR dial at the back of the machine to set the required screen contrast.*



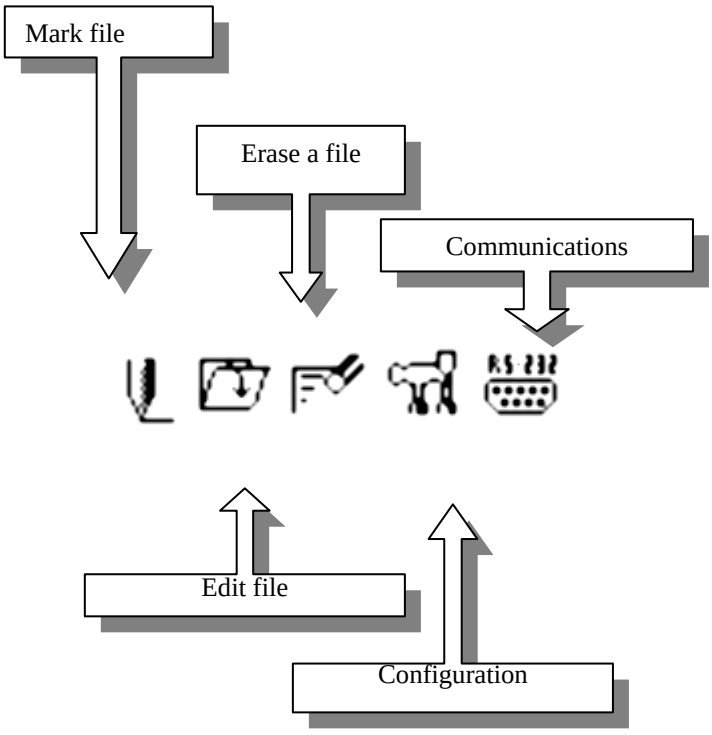
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5. SOFTWARE

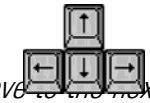
The MULTI-MARK machine is factory-prepared and is ready to connect and begin cutting. Nevertheless, we at Altuna MDL recommend you follow some simple steps to set up MULTI-MARK in the way that you want. This personalised set-up process involves:

Configuring the screen language (see chapter 5.5.6.4).
Configuring the keyboard language (see chapter 5.5.6.4).
Setting the clock (see chapter 5.5.6.3).

5.1. Main Menu



Use the direction keys (up, down, left, right) to access all the screens on the MULTI-MARK.



After selecting the required option, press the Enter key to move to the next screen or the Escape key to return to the previous one.

Enter

Escape

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.2. Marking a file

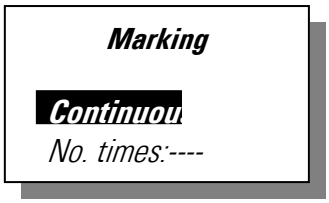
A file must be created and stored in the memory before it can be marked.

5.2.1 Selecting a file

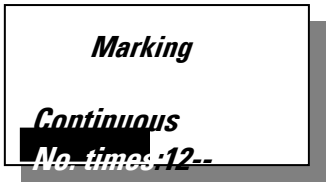
Files are selected from an alphabetical list that shows all the files stored in the memory.

5.2.2 Continuous marking or marking control

When selecting the continuous marking option, the selected file is marked indefinitely every time the green button is pressed. To end the process press the red button



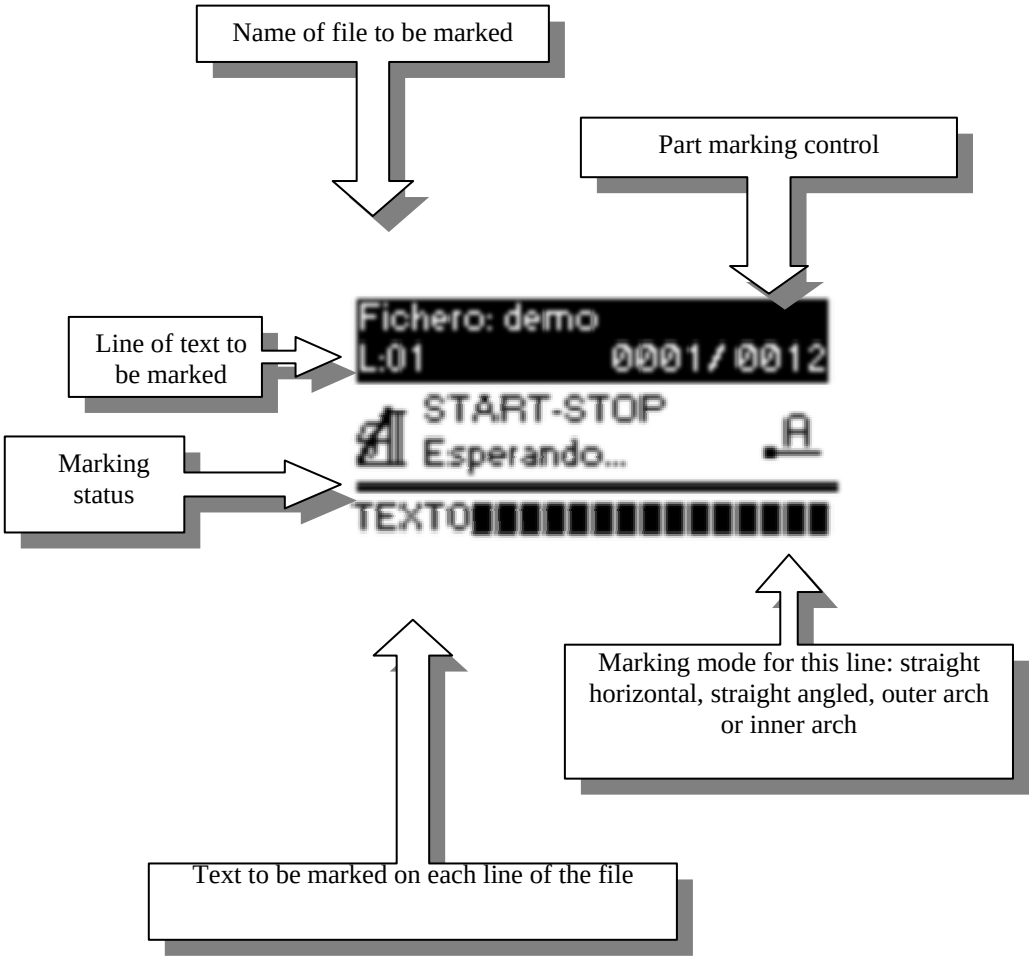
The marking control option is used to enter the number of times the same file needs to be marked. After the number has been introduced, the system automatically exits the marking editor.



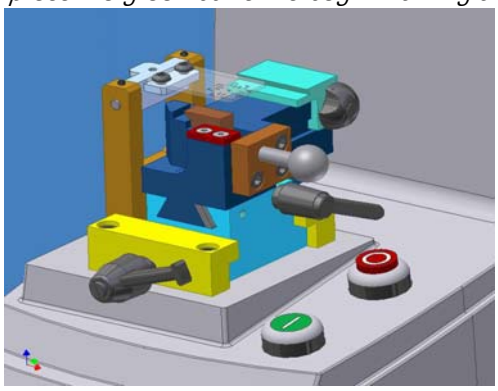
The permitted marking range is 1-9999.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.2.3 Description of the marking screen



After accessing this screen, press the green button to begin marking and the red button to stop.



Before pressing the green button always position the window viewer in the rest position and clear the marking area.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

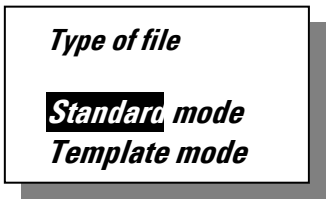
5.3. Editing a file

5.3.1 Selecting an existing file or creating a new one

When selecting the menu to create/amend a file an alphabetical list will appear containing the files stored in the memory. Files can be opened and modifications made to them simply by selecting them or by entering a file name from the list. If the name entered cannot be found on the list a new file is created.

> *If in trying to edit a new file, a "memory full" message appears, some of the existing files must be erased to create space in the memory.*

When creating a new file a decision must be made whether to create a STANDARD or TEMPLATE file.



5.3.1.1 Standard mode

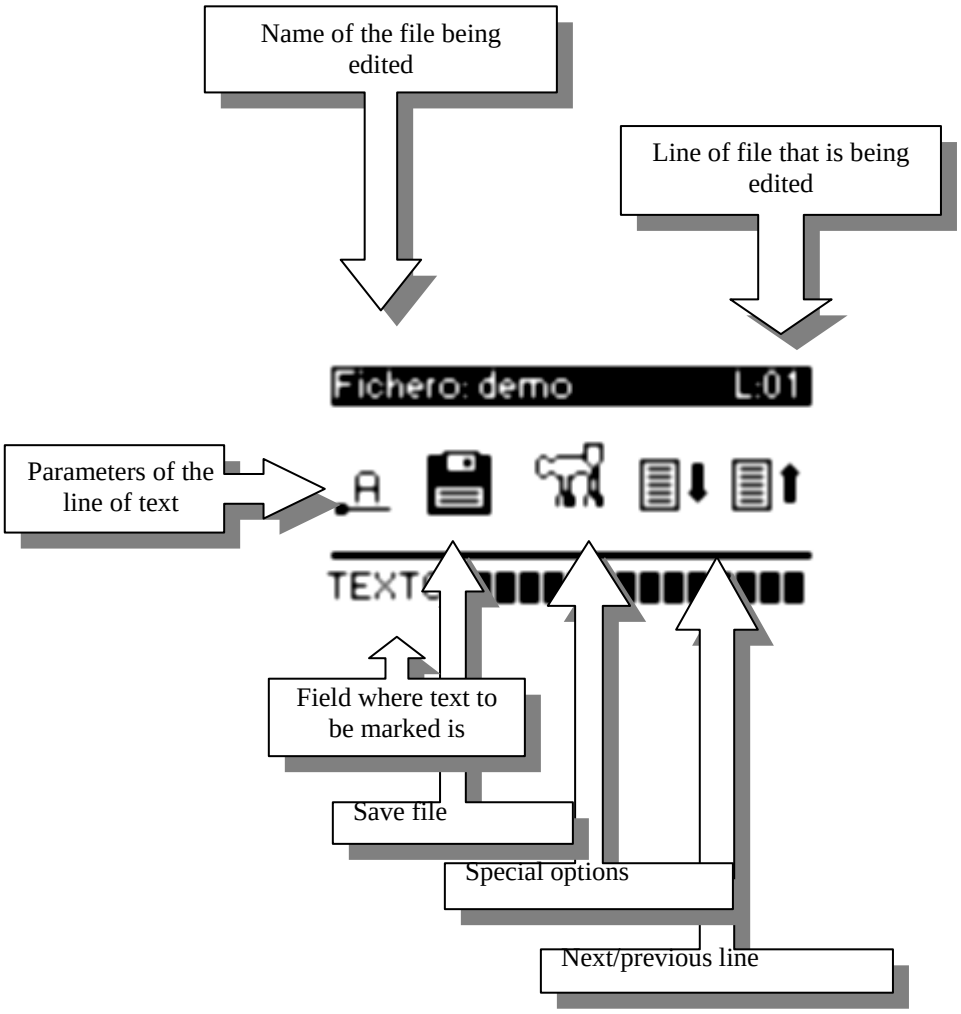
Enables any type of marking to be performed in any direction, angle and position. After selecting Standard mode, the File Edition screen appears (section 5.3.2.).

5.3.1.2 Template mode

The files are generated from templates with predetermined sizes. All that is required is to position the key so that only the part to be marked coincides with the window viewer. The software makes the necessary calculations to adjust the text to the selected template.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.2 Description of the file edition screen



5.3.3 Creating the text to be marked

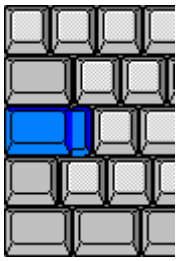
Text must be entered in the current line before advancing to the next. To advance select the "next line" option or press Enter when in the text insertion field.

> *Press the key F1 in the text insertion field and a small contextual help screen will appear.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

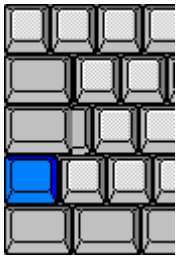
5.3.3.1 Alphanumerical characters

Type the alphanumerical characters on the keyboard into the text insertion field. Then position the cursor in the required text position and press the corresponding key.



CAPS LOCK key (+ charcater key):

A-Z, a-z, Ñ, ñ ,Ç, ç, Ä, ä, Ö, ö, Ü, ü

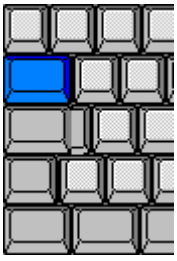


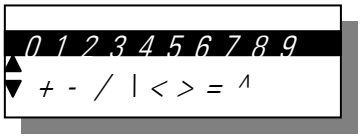
SHIFT key (+ number key):

~(1), @(2), £(3), $(4), %(5), &(6), €(7), *(8), #(9), Ø(0)

5.3.3.2 Special symbols

*In the text insertion field press the **Tabulator** key on the keyboard to display a list with all the available symbols. Use the up/down keys to scroll through the symbols, and press the corresponding number to insert the required symbol in the text insertion field.*





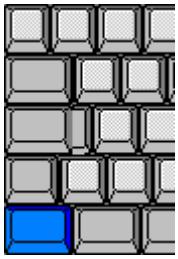
Special symbols:

+ - / \ < > = ^ { } ( ) [ ] _ | ¿ ? ¡ ! " ' , . : ; Δ λ α β Ω φ μ À Á
Â à á â Ë È É Ê ë è é ê Ï Ì Í Î ï ì í î Ò Ó Ô ò ó ô Ù Ú Û ù ú û Ã
ã Õ õ ª º Å å

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.3.3 Characters defined by the user

*In the text insertion field press the **Control** key on the keyboard to display a list showing all the characters that can be defined by the user. Use the up/down keys to scroll through the symbols, and press the corresponding number to insert the required symbol in the text insertion field.*



Characters defined by the user:
Up to 63 characters can be defined by the user.
This option must be ordered beforehand.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4 Text parameters in standard mode

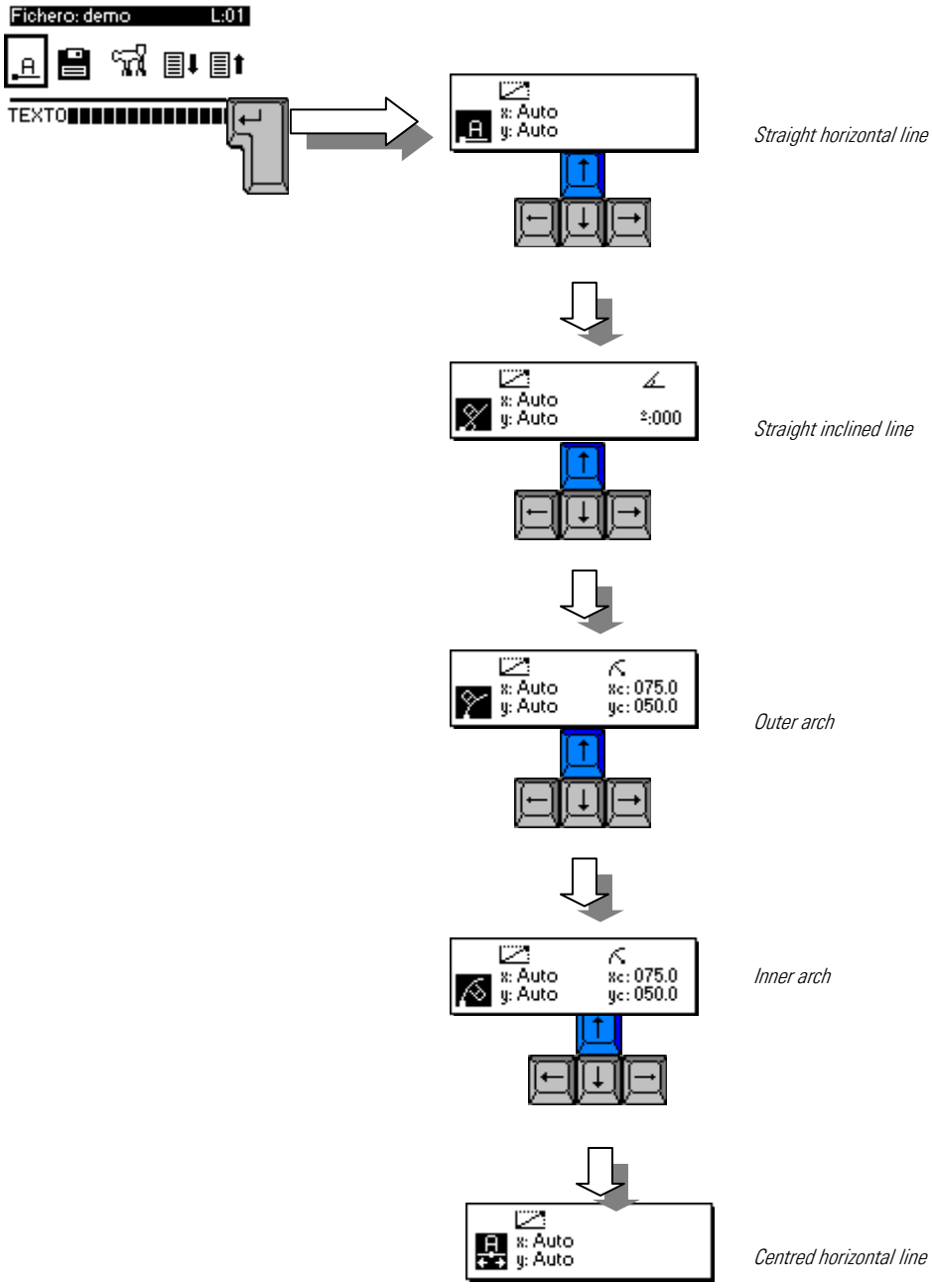
The marking file is a file that contains all the parameters the marking machine needs to conduct a marking operation. In representing the text to be marked each of these files may consist of up to 20 lines containing 20 characters each. Modifiable parameters are assigned to each of these lines. These parameters are as follows:

- ***Marking mode**: marking of text in a straight horizontal line, straight angled line, inner arch, outer arch and a centred straight horizontal line.*
- ***X,Y coordinates**: the coordinates of the bottom left base of the first character on each line.*
- ***Inclination angle**: angle of inclination of the marking on a straight angled line.*
- ***Xc, Yc coordinates**: coordinates at the centre of the circumference that outlines a marking in arch mode .*
- ***Height/width of character**: values for the height and width of the characters in each line. The value of the height is variable and the value of the width can be automatic or variable. This enables a wide range of different forms to be generated for the characters.*
- ***Marking force**: the force with which the marking is conducted, enabling the variation of the depth of the marking imprint.*
- ***Marking speed**: variable marking speed.*
- ***Matrix type**: selects the type of matrix for the characters: matrix with characters of 5 x 7 dots, 9 x 14 dots or matrices with variable spacings between dots (0.05 mm, 0.10 mm, 0.15 mm and 0.20 mm).*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4.1 Marking modes

Texts can be marked using five different modes: straight horizontal line, straight angled line, inner arch, outer arch and centred straight horizontal line.



Straight horizontal line

Straight inclined line

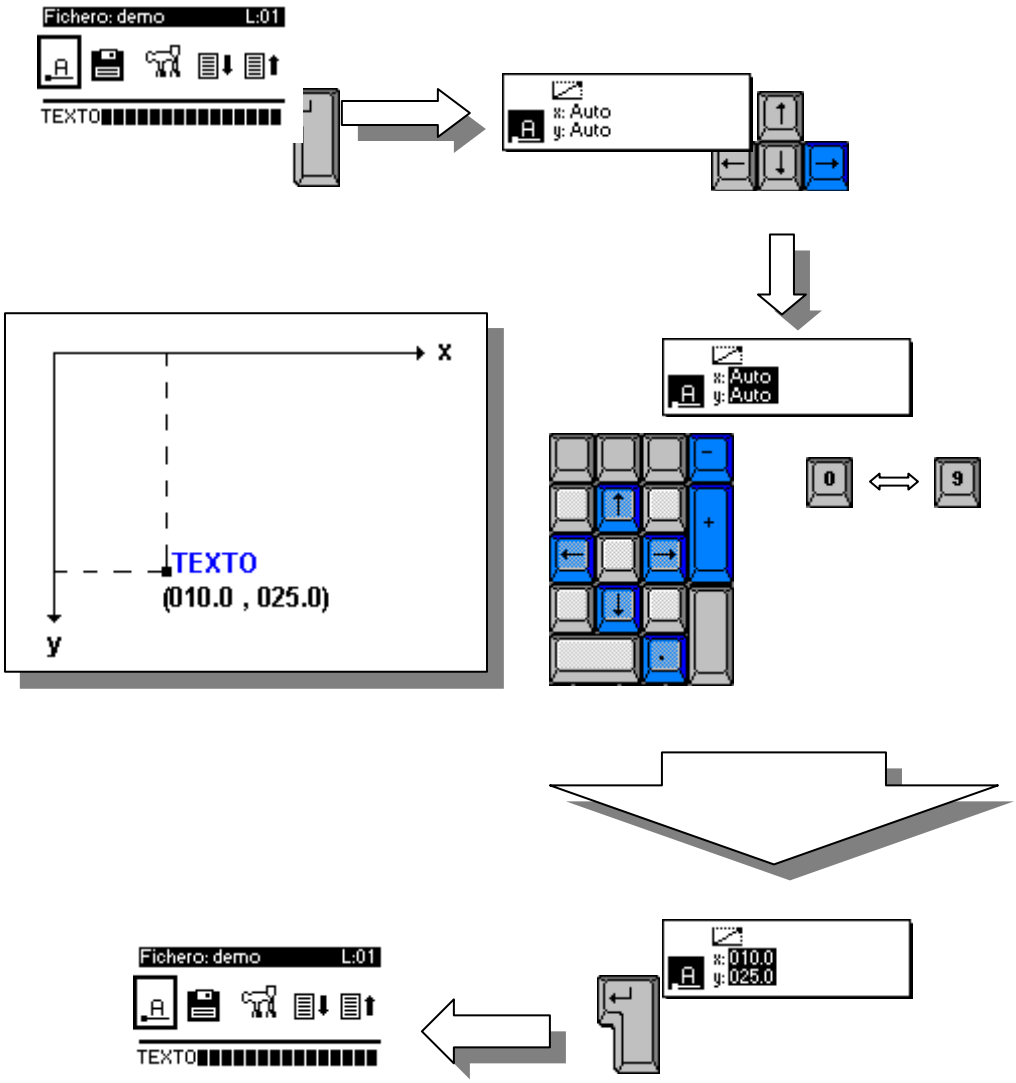
Outer arch

Inner arch

Centred horizontal line

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4.1.1. Straight horizontal line



The X,Y coordinates set the line-marking starting position, beginning from the top left-hand corner. The format is three numbers and a decimal.

There are three operating options:

- *Enter an 'A' so that the programme automatically loads the coordinate values.*
- *Key in the numerical values of the X and Y coordinates.*
- *Use the motor displacement keys to move the punch to the starting position. In this operating mode, the + and – keys can be used to increase or decrease the displacement spacing to one of its three possible values: 0.1 mm, 1 mm or 5 mm (default value).*

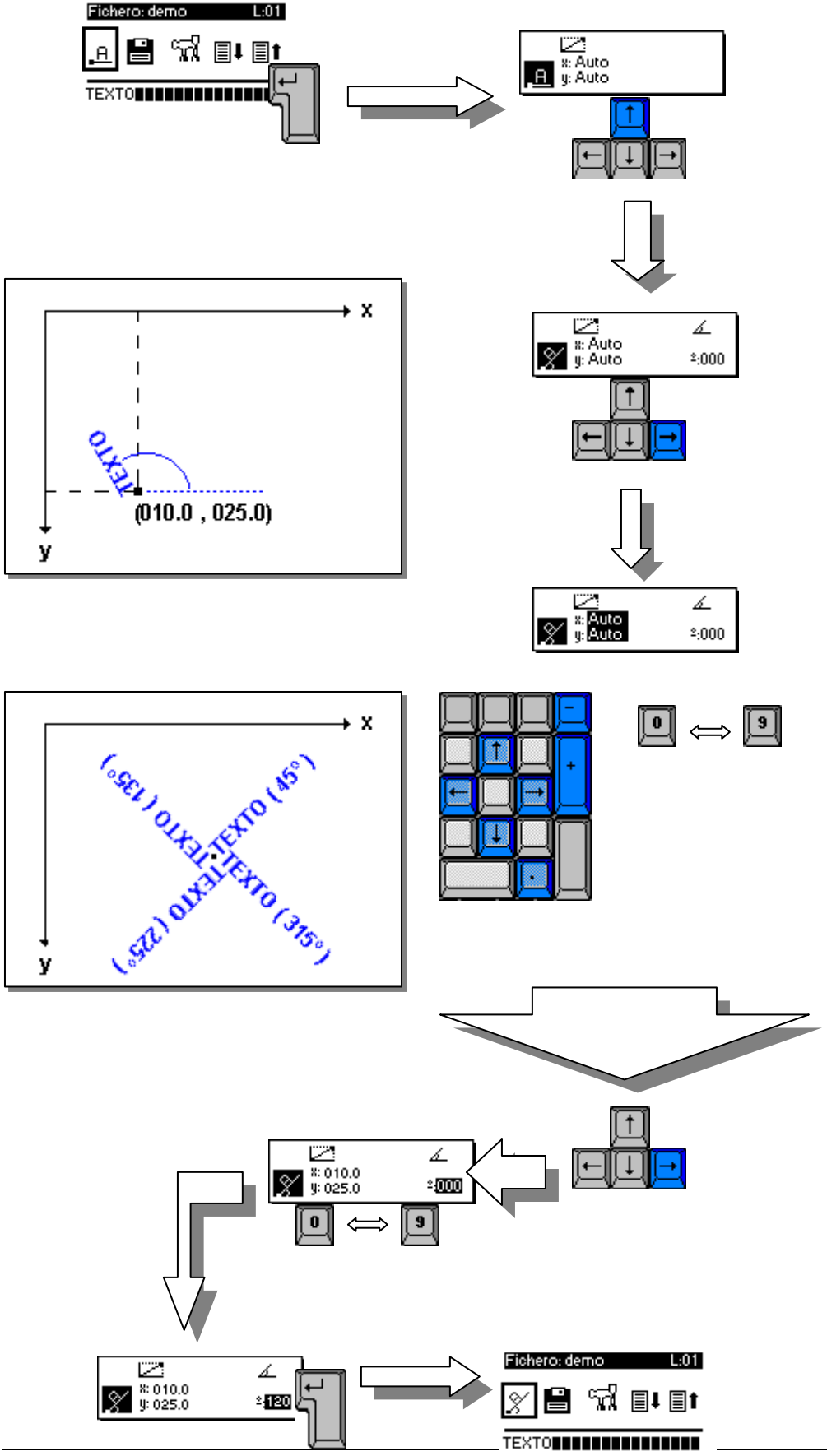
If the 'Auto' values are left as coordinates, the programme automatically loads the following values:
X=0
Y= height of character (first line)

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

Y= height of character + $Y_{PREVIOUS\ LINE}$ (rest of lines)

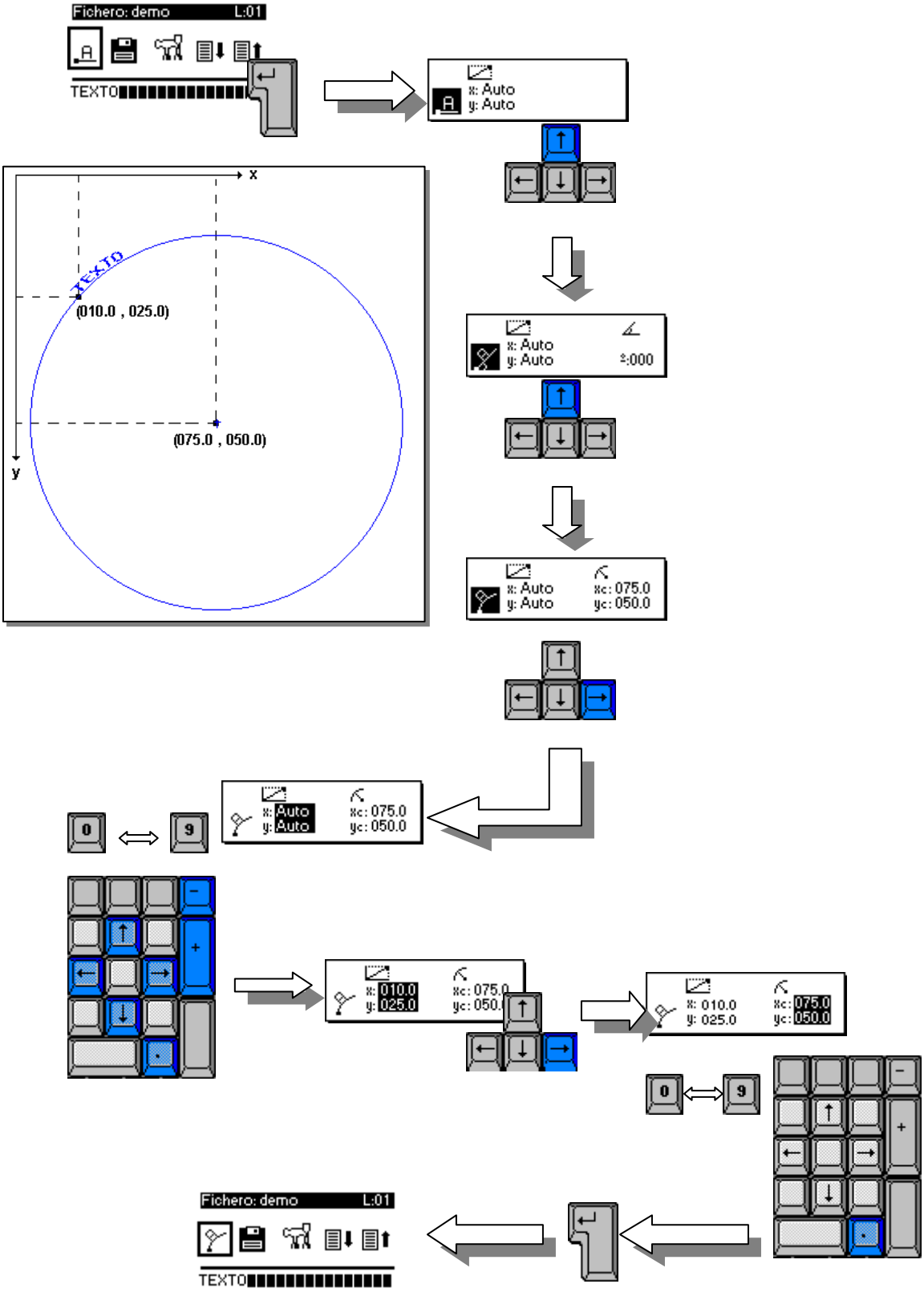
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.4.1.2. Straight angled line



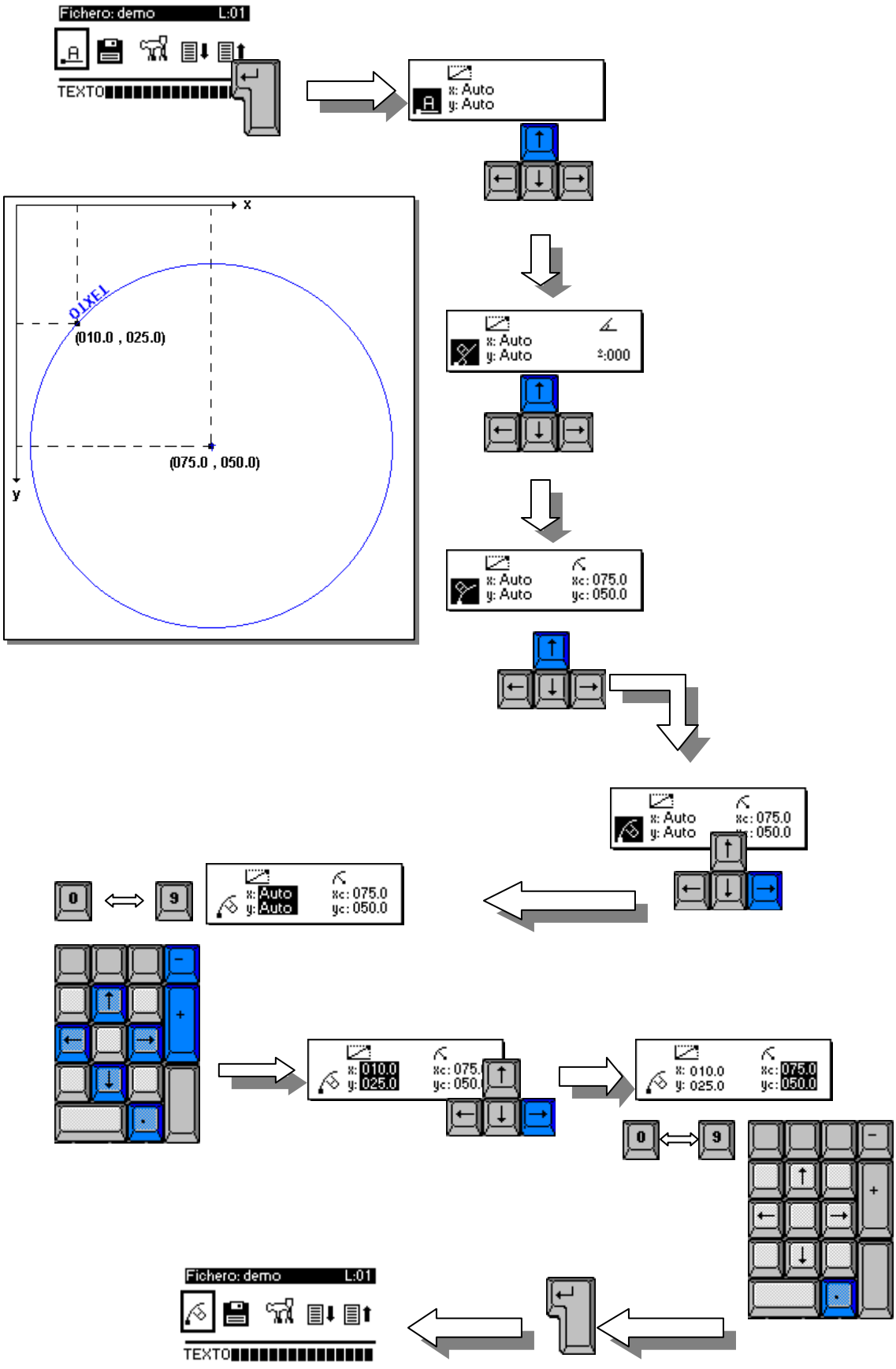
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es jma@jma.es

5.3.4.1.3. Outer arch



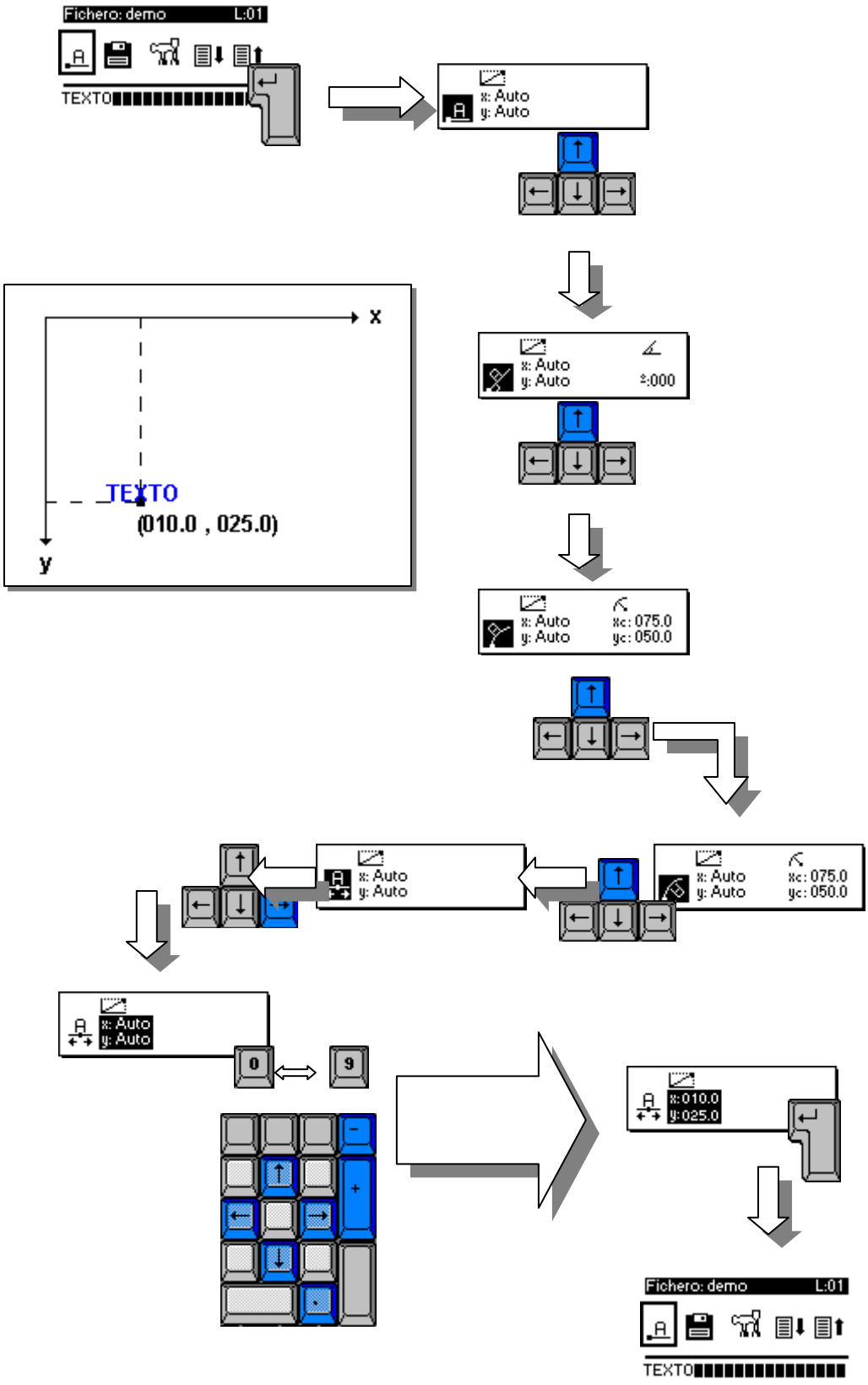
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4.1.4. Inner arch



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4.1.5. Centred straight horizontal line



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

The X coordinate sets the vertical position of the centre of the line. If this coordinate is 'Auto', the centre of the line is half the marking width. The format is three numbers and a decimal.
There are three operating options:

- *Enter an 'A' so that the programme automatically loads the coordinate values.*
- *Key in the numerical values of the X and Y coordinates.*
- *Use the motor displacement keys to move the punch to the starting position. In this operating mode, the + and – keys can be used to increase or decrease the displacement spacing to one of its three possible values: 0.1 mm, 1 mm or 5 mm (default value).*

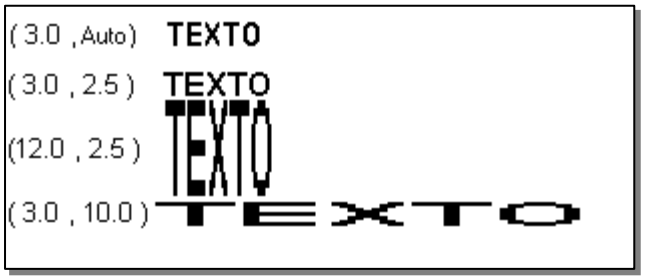
If the 'Auto' values are left as coordinates, the programme automatically loads the following values:
X=(marking width÷2)-(text width÷2)
Y= height of character (first line)
Y= height of character + $Y_{PREVIOUS\ LINE}$ (rest of lines)

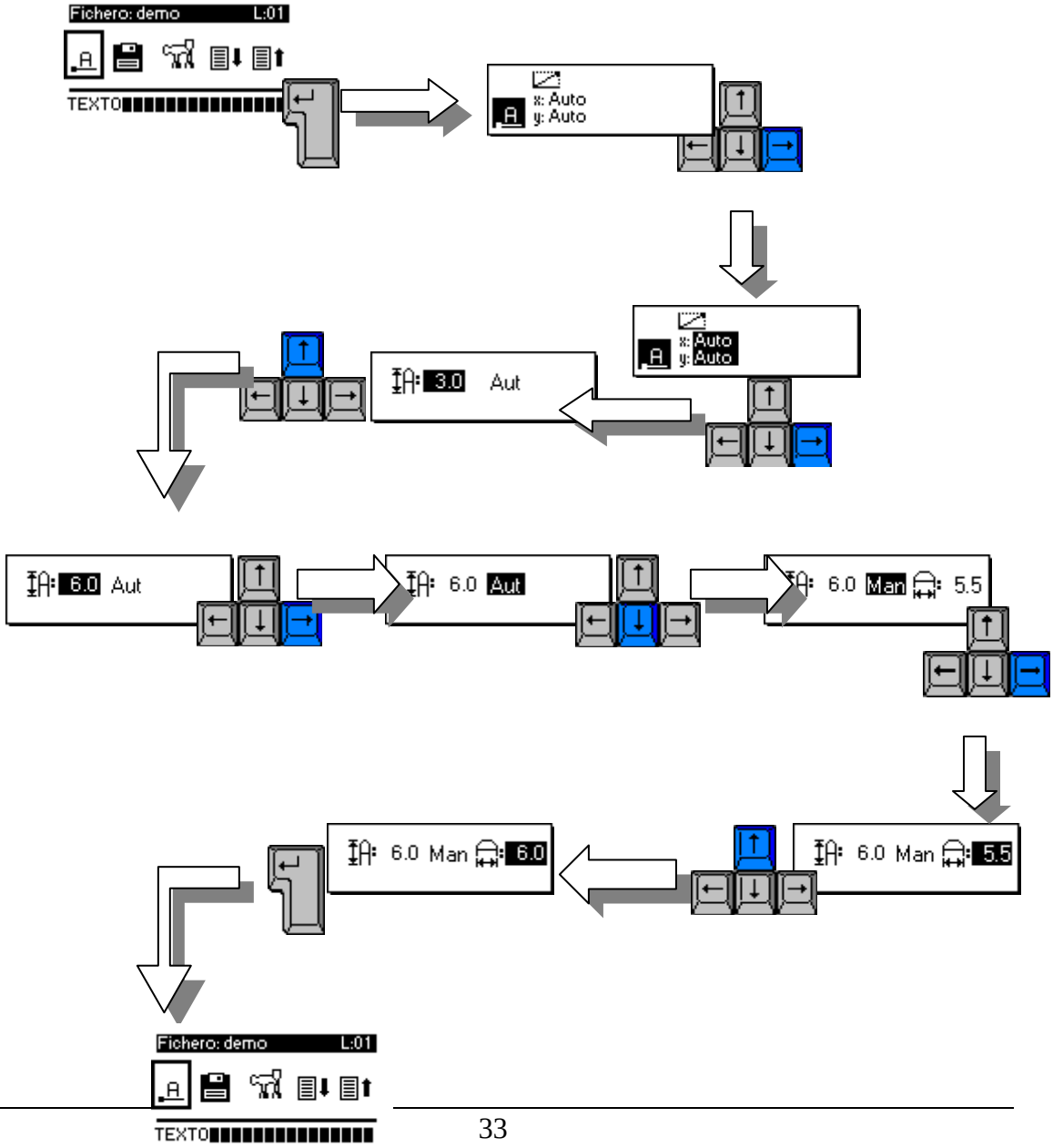
The internal calculation of the centred coordinates does not take into consideration either the logos or the datamatrix.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.4.2 Width/height of character

The height and width of the character can be varied and can be independent of each other. The width value can be automatic, with a ratio of 3:2 in relation to the height value or independent to the height value. This means that these parameters can be used to give the characters personalised forms.





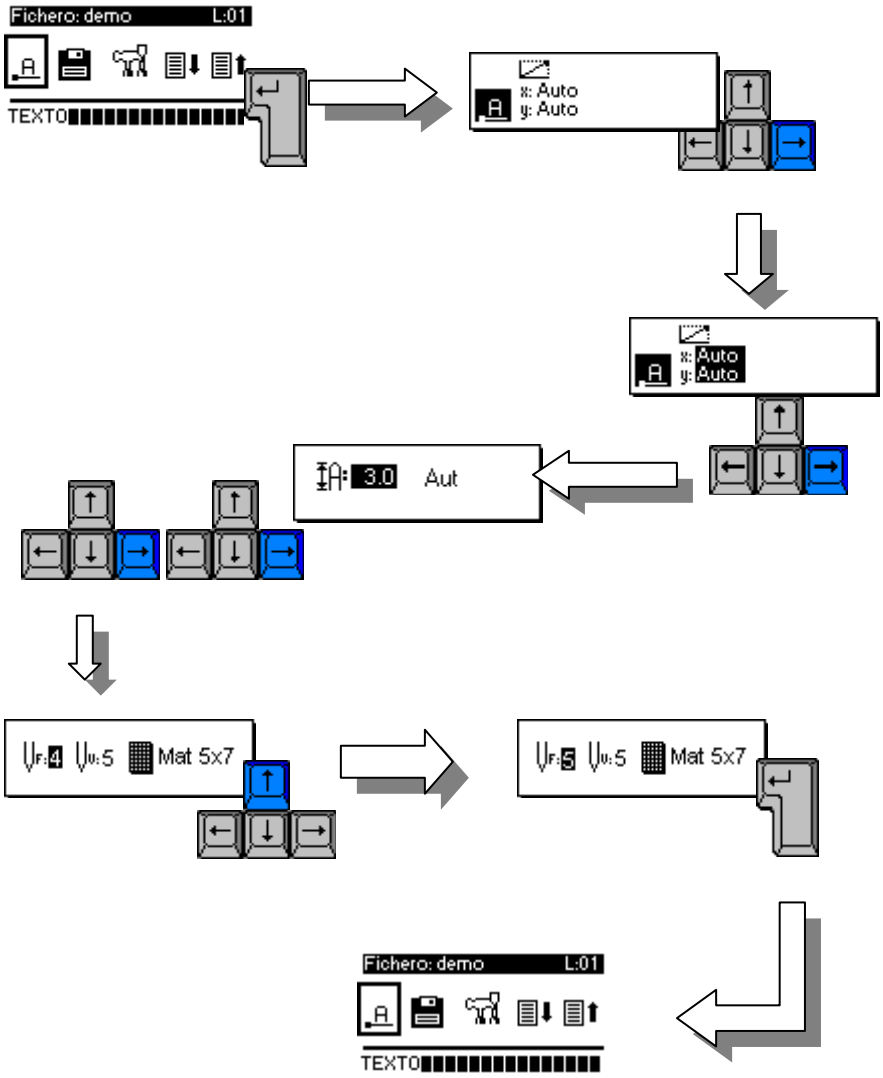
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

Character height values:
1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
Character width values:
0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
Automatic width values:
0.66, 1, 1.33, 1.66, 2, 2.33, 2.66, 3, 3.33, 3.66, 4, 4.33, 4.66, 5, 6.33, 6.66, 7.33, 8, 8.66, 9.33, 10, 10.66, 11.33, 12, 12.66, 13.33

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.4.3 Marking force

The marking force of the punch can be varied, thereby enabling different imprint depths.



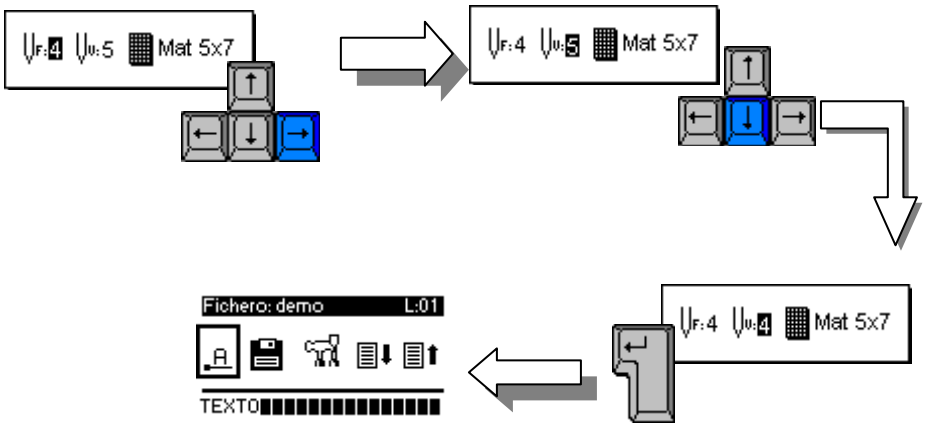
The marking force value range is 1-9

This option is only valid for electro-magnetic punches

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.4.4 Marking speed

The marking speed can be varied, thereby prioritising the marking quality by using a low speed, or prioritising the marking time to generate a high speed. The marking time also depends on the size of the character: the larger the character, the more dots that have to be marked and the greater the amount of time needed).



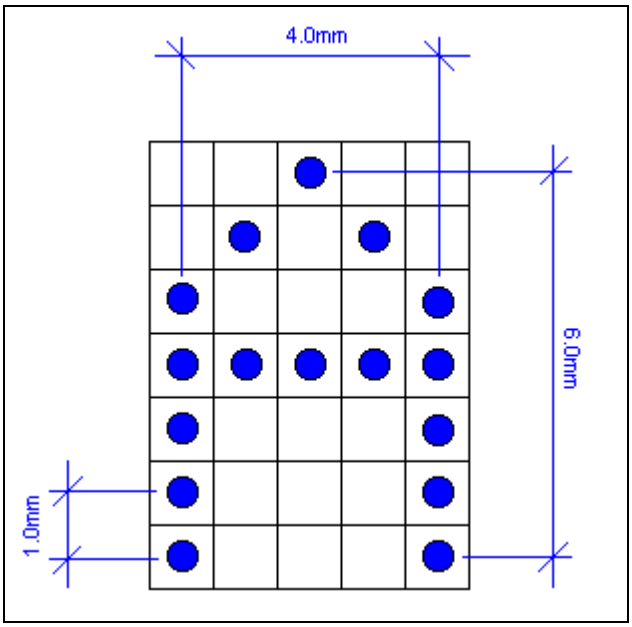
The marking speed value range is 1-9

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

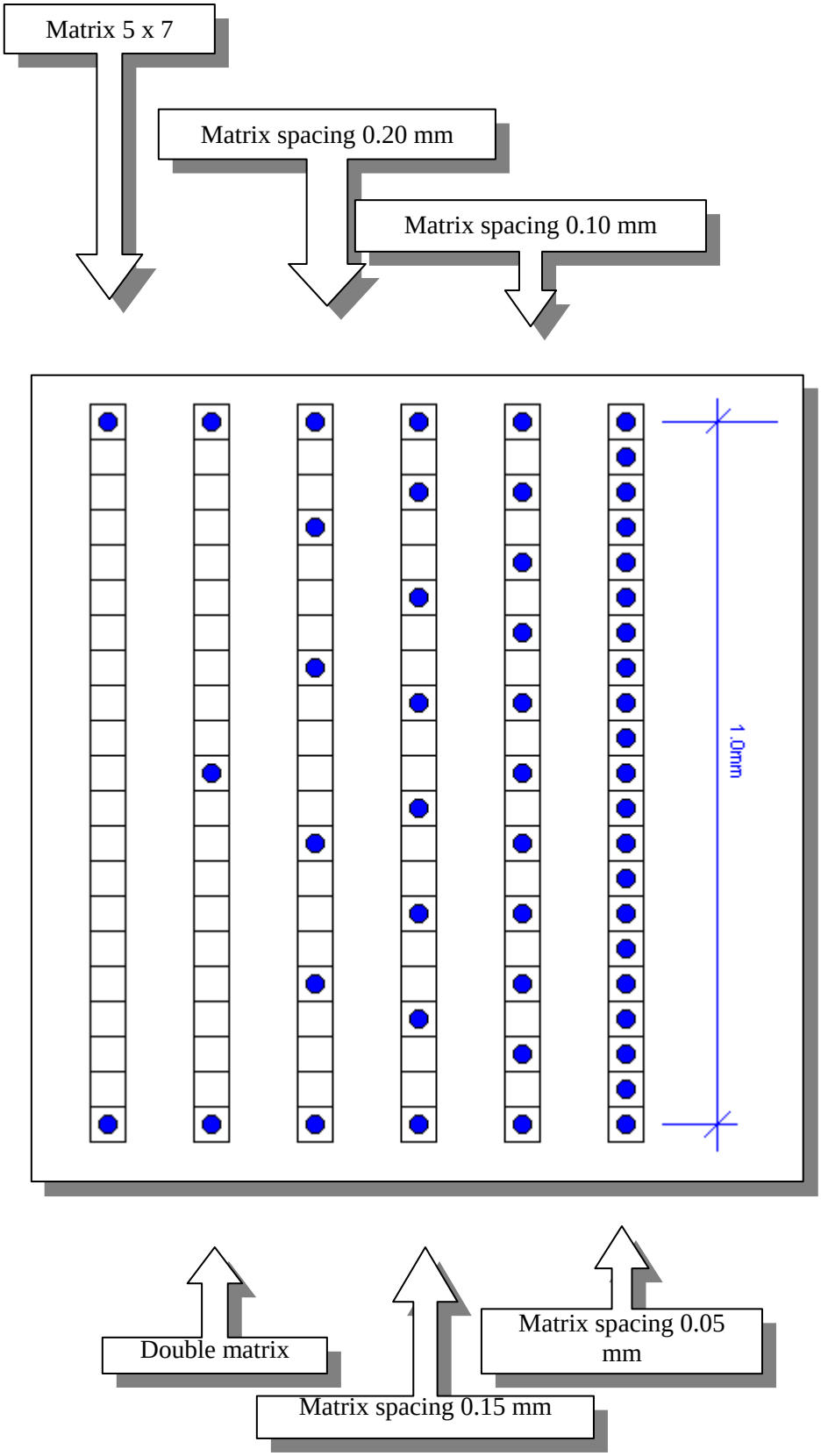
5.3.4.5 Type of character matrix

The marked characters are configured according to a matrix 7 dots high and 5 dots wide. However, other matrix configurations can be used to improve the character resolution:

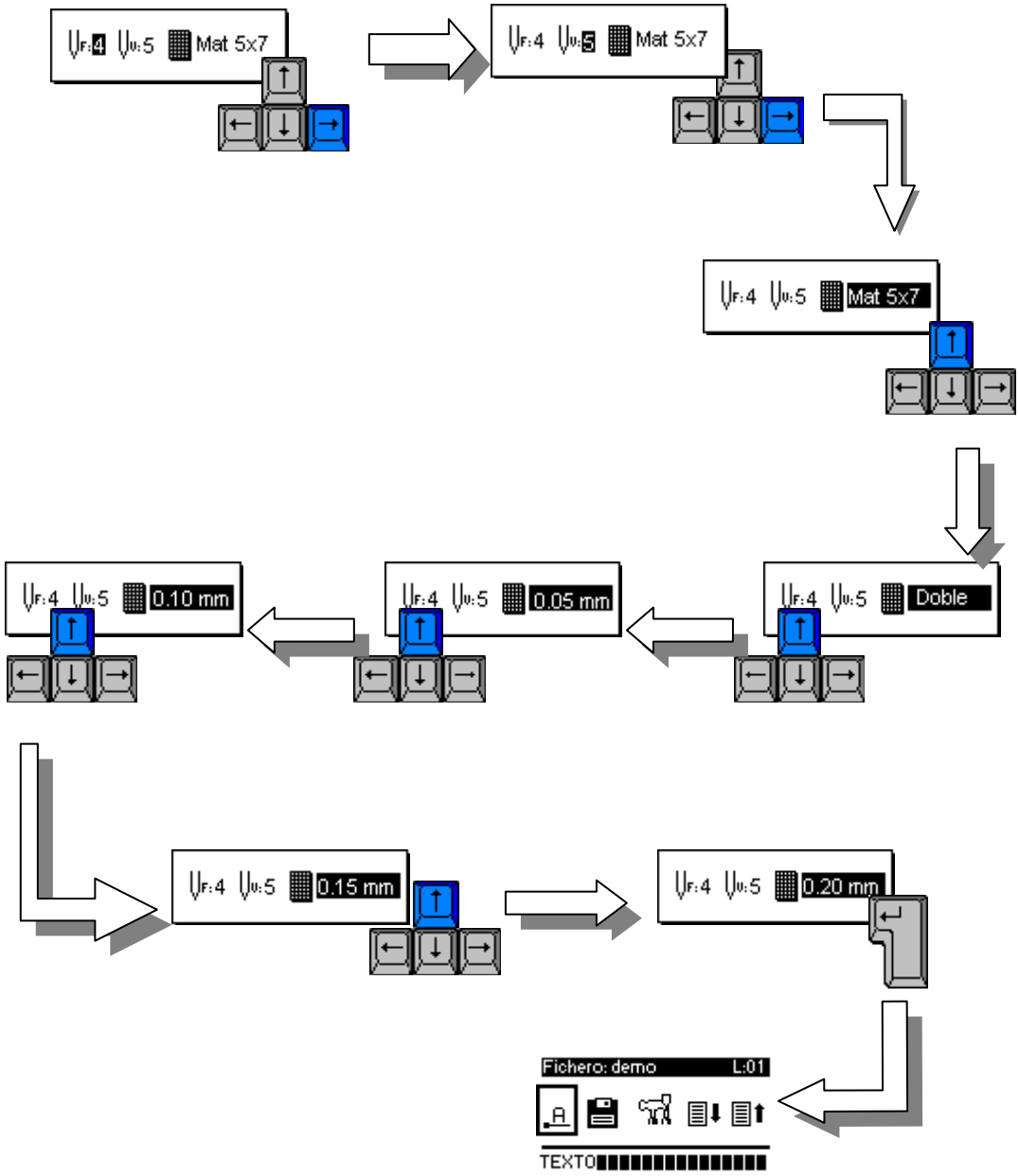
Double matrix: *a new dot is positioned between the dots forming the original matrix.*
Adjustable spacing between dots: *dots with adjustable spacings between them are positioned between the dots of the original matrix. The values of the spacings between the dots can be 0.05 mm, 0.10 mm, 0.15 mm or 0.20 mm. The number of dots that can be inserted depends on the size of the character and the spacing between them.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

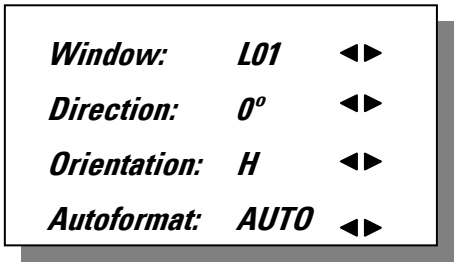


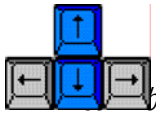
Double
File: demo
TEXT

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

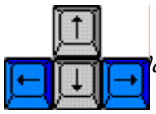
5.3.5 Text parameters in template mode

In creating a new file and selecting template mode, the text parameters that must be defined are as follows:





The up/down keys be used to move through the four options (Window, Direction, Orientation, Autoformat).

The left/right keys are used  *ange the values in each option.*

5.3.5.1 Window

Window	Width x height (mm)
L01	10x3
L02	10x6
L03	10x9
L04	15x3
L05	15x6
L06	15x9
L07	20x3
L08	20x6
L09	20x9
L10	20x12
L11	25x6
L12	25x9
L13	25x12
L14	25x15
L15	35x20

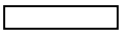
Window	Width x height (mm)
L16	3x10
L17	6x10
L18	9x10
L19	3x15
L20	6x15
L21	9x15
L22	3x20
L23	6x20
L24	9x20
L25	12x20
L26	6x25
L27	9x25
L28	12x25
L29	15x25

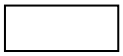
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

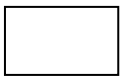

L1=10x3

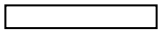

L2=10x6

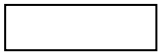

L3=10x9

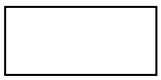

L4=15x3

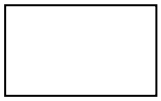

L5=15x6

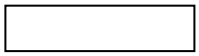

L6=15x9

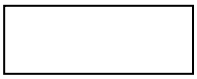

L7=20x3


L8=20x6


L9=20x9


L10=20x12


L11=25x6


L12=25x9


L13=25x12


L14=25x15

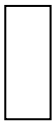

L15=35x20

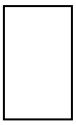

L16=3x10


L17=6x10


L18=9x10

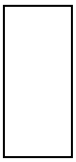

L19=3x15

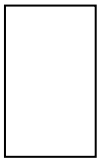

L20=6x15


L21=9x15

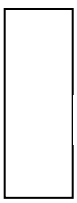

L22=3x20

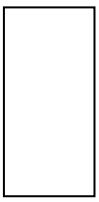

L23=6x20

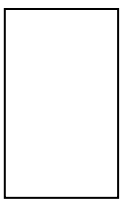

L24=9x20


L25=12x20


L26=6x25


L27=9x25


L28=12x25


L29=15x25

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.5.2 Direction

Indicates the angle with which the text is marked. There are four options:

Direction
0º
90º
180º
270º

See section 5.3.5.5 for examples.

5.3.5.3 Orientation

There are two options:

Orientation	
H	Horizontal
V	Vertical

See section 5.3.5.5 for examples.

5.3.5.4 Autoformat

Modes AUTO or MAN can be selected.

Autoformat	
AUTO	Automatic
MAN	Manual

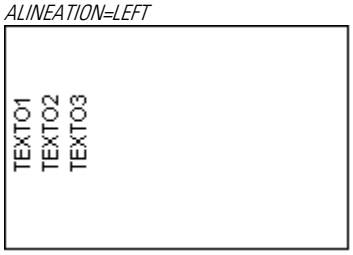
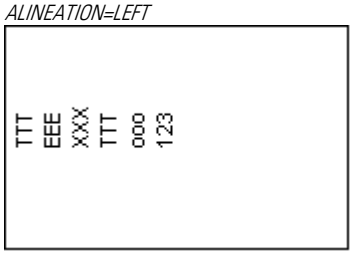
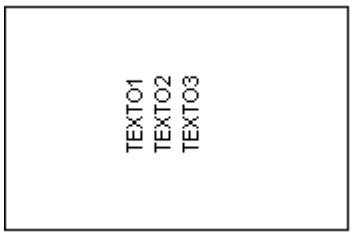
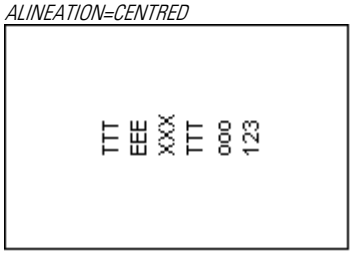
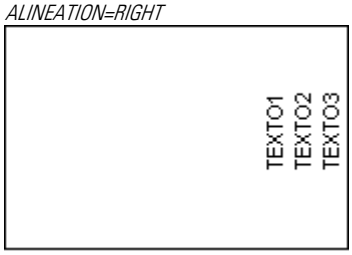
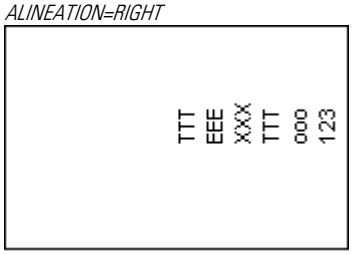
If Manual Autoformat is selected it is possible to define the height and width of the characters to be marked and their alignment in Text Parameters (see section 5.3.6). If, however, Automatic Autoformat is selected, the height and width is calculated automatically according to the window selected, and a selection can be made between four different ways of framing the text in the template (see section 5.3.6).

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

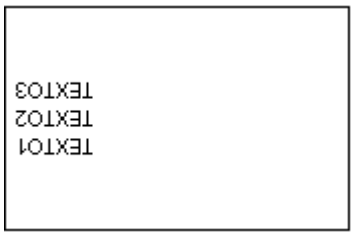
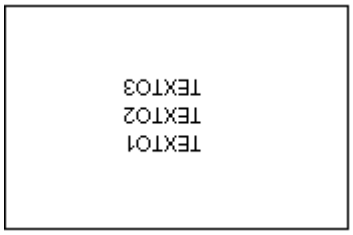
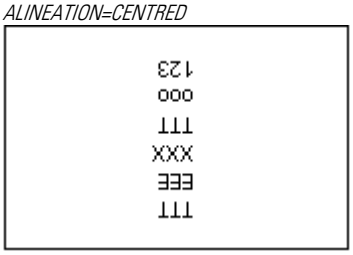
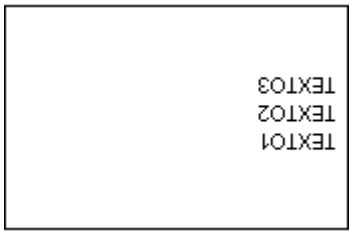
5.3.5.5 Examples of templates

DIRECTION=0º ORIENTATION=HORIZONTAL	***DIRECTION=0º ORIENTATION=VERTICAL***
ALINEATION=LEFT TEXTO1 TEXTO2 TEXTO3	*ALINEATION=LEFT* TTT EEE XXX TTT ooo 123
ALINEATION=CENTRED TEXTO1 TEXTO2 TEXTO3	*ALINEATION=CENTRED* TTT EEE XXX TTT ooo 123
ALINEATION=RIGHT TEXTO1 TEXTO2 TEXTO3	*ALINEATION=RIGHT* TTT EEE XXX TTT ooo 123

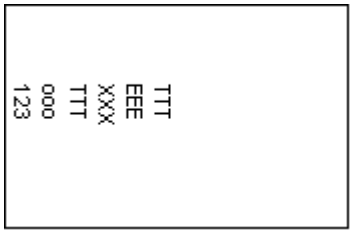
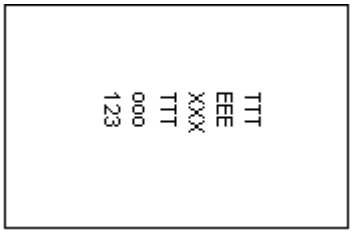
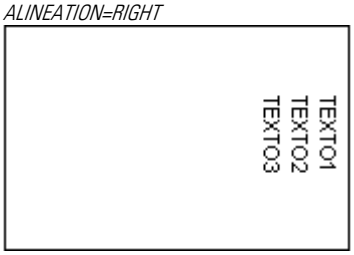
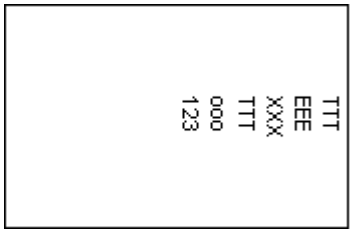
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

DIRECTION=90º ORIENTATION=HORIZONTAL	***DIRECTION=90º ORIENTATION=VERTICAL***
ALINEATION=LEFT 	*ALINEATION=LEFT* 
ALINEATION=CENTRED 	*ALINEATION=CENTRED* 
ALINEATION=RIGHT 	*ALINEATION=RIGHT* 

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

DIRECTION=180º ***ORIENTATION=HORIZONTAL***	***DIRECTION=180º*** ***ORIENTATION=VERTICAL***
ALINEATION=LEFT 	*ALINEATION=LEFT* 
ALINEATION=CENTRED 	*ALINEATION=CENTRED* 
ALINEATION=RIGHT 	*ALINEATION=RIGHT* 

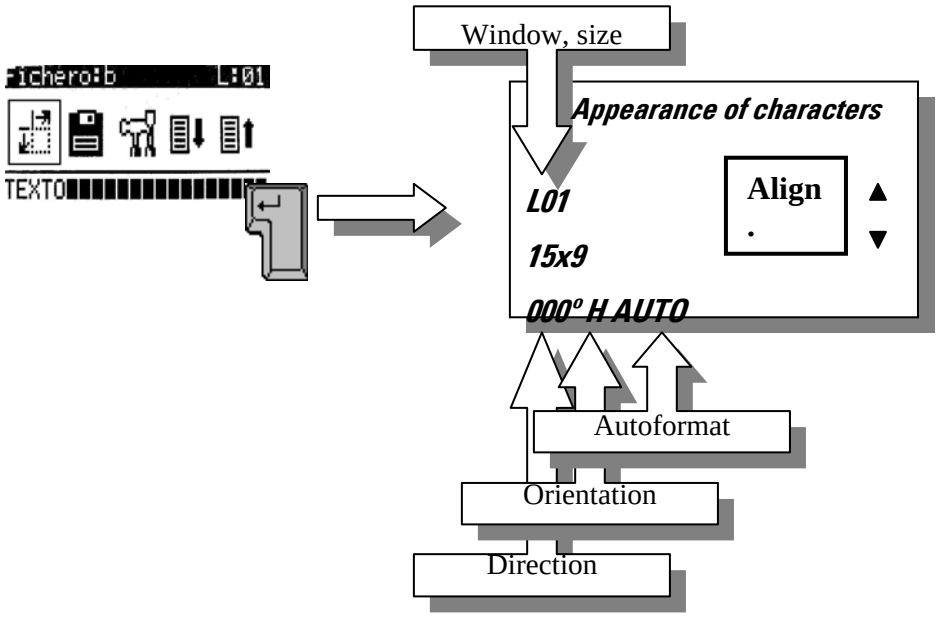
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

DIRECTION=270º ***ORIENTATION=HORIZONTAL***	***DIRECTION=270º*** ***ORIENTATION=VERTICAL***
ALINEATION=LEFT 	*ALINEATION=LEFT* 
ALINEATION=CENTRED 	*ALINEATION=CENTRED* 
ALINEATION=RIGHT 	*ALINEATION=RIGHT* 

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

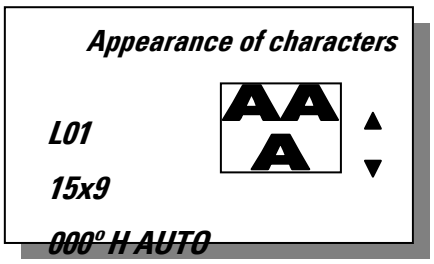
5.3.6 Text parameters in template mode (2)

5.3.6.1 Appearance of characters/Alignment



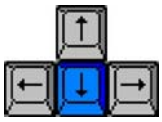
The left side of the window contains information on the template. This information cannot be changed. On the right side there is a box that can appear in two different ways.

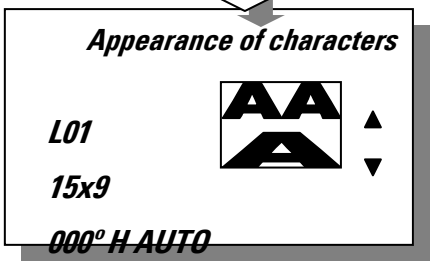
a) If the option Automatic Autoformat has been selected in the section 5.3.5.4 the option Appearance of Characters can be selected.



Adjusted in height and width

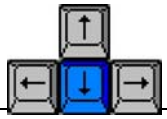
all lines with same format



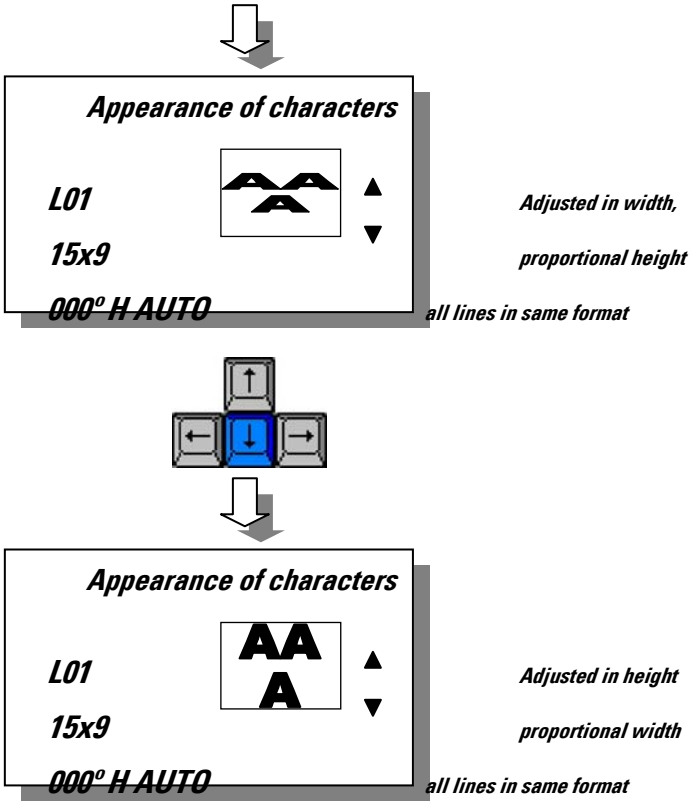


Adjusted in height and width

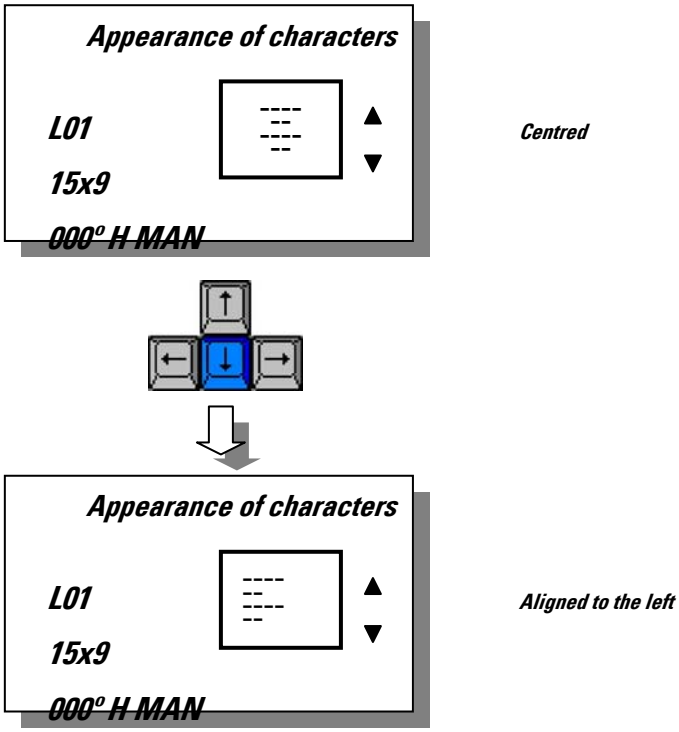
each line in its format



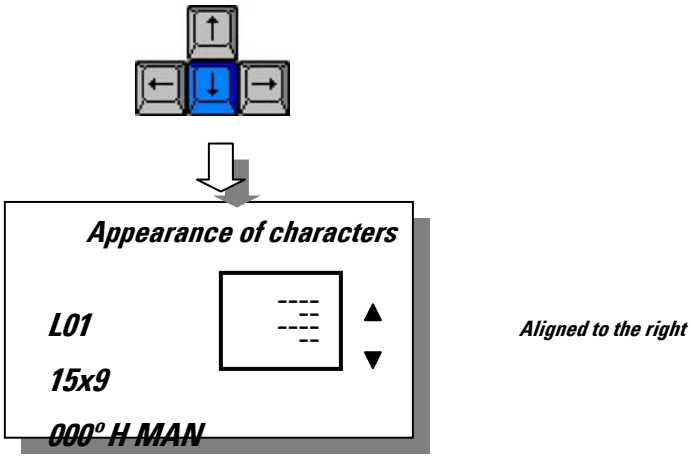
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es



b) *If the option Manual Autoformat has been selected in the section [5.3.5.4](#) the option Alignment can be selected here.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es



5.3.6.2 Width/height of character

Consult section "Width/Height of Character 5.3.4.2.

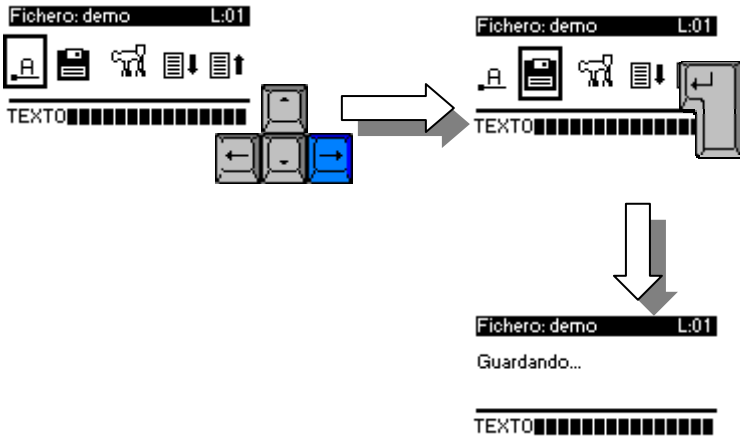
> *This option is only available if Manual Autoformat is selected in the section 5.3.5.4.*

5.3.6.3 Force, speed, matrix type

Check the sections Marking Force 5.3.4.3, Marking Speed 5.3.4.4 and Type of Character Matrix 5.3.4.5.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

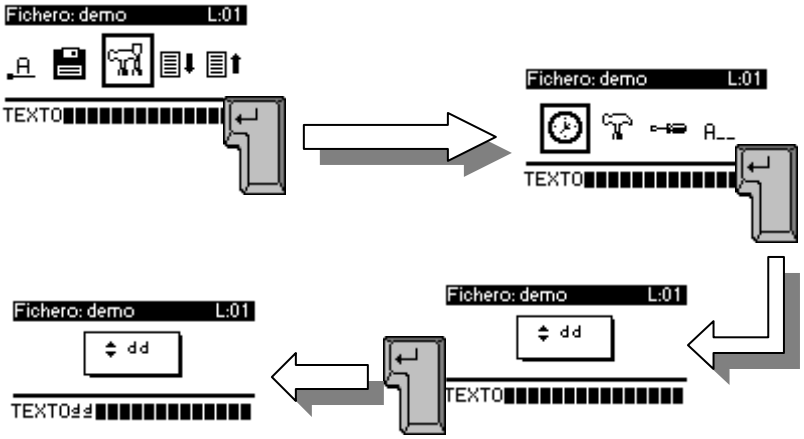
5.3.7 Saving a file



This operation can also be conducted by pressing the F4 key when in the text insertion field.

5.3.8 Special options

5.3.8.1 Calendar options



The calendar-type characters are symbols that are entered to set the marker's internal clock. When editing the marking file, these characters have a fixed symbol that corresponds to each of the calendar parameters. Depending on the internal clock, during marking these fixed symbols are replaced by their equivalent symbol. Calendar characters are as follows:

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es jma@jma.es
Member of Altuna Group

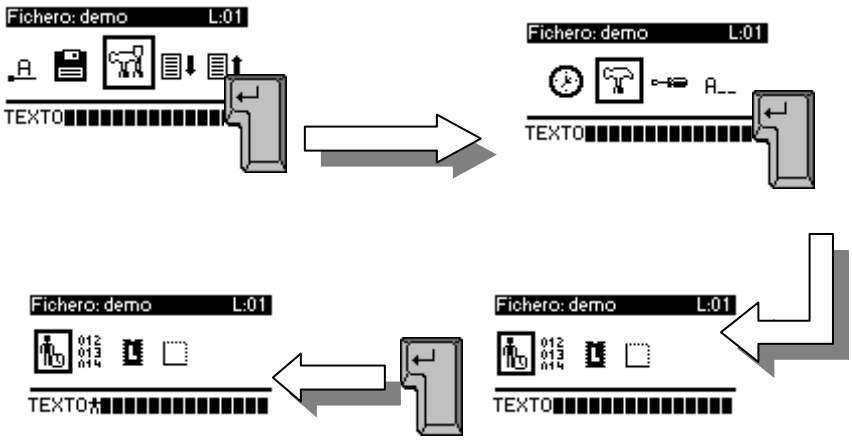
- ***hh (time):*** *these two digits indicate the hour on the marker clock at the moment the marking operation takes place. Values 00-23.*
- ***nn (minutes):*** *these two digits indicate the minutes on the marker clock at the moment the marking operation takes place. Values 00-59.*
- ***dd (day of the month):*** *these two digits indicate the day of the month on the marker clock at the moment the marking operation takes place. Values 01-31 (depending on the month and whether it is a leap year).*
- ***mm (month):*** *these two digits indicate the month on the marker clock at the moment the marking operation takes place. Values 01-12.*
- ***aa (year):*** *these two digits indicate the year on the marker clock at the moment the marking operation takes place. Values 00-99.*
- ***y (year):*** *this digit indicates the year on the marker clock at the moment the marking operation takes place. Values 00-99.*
- ***xxx (day of the year):*** *these three digits indicate the day of the year on the marker clock at the moment the marking operation takes place. Values 001-365/366.*
- ***ww (week of the year):*** *these two digits indicate the week of the year on the marker clock at the moment the marking operation takes place. Values 01-52/53.*
- ***j (day of the week):*** *this digit indicates the day of the week on the marker clock at the moment the marking operation takes place. Values 01(Monday)-07(Sunday).*

The calendar characters are inserted in the position of the cursor in the text field (provided that there is enough space in the field).

> *To ensure this type of character is marked correctly, the time on the marker's internal clock must be set correctly.*

5.3.8.2 Special options

5.3.8.2.1. Shift characters

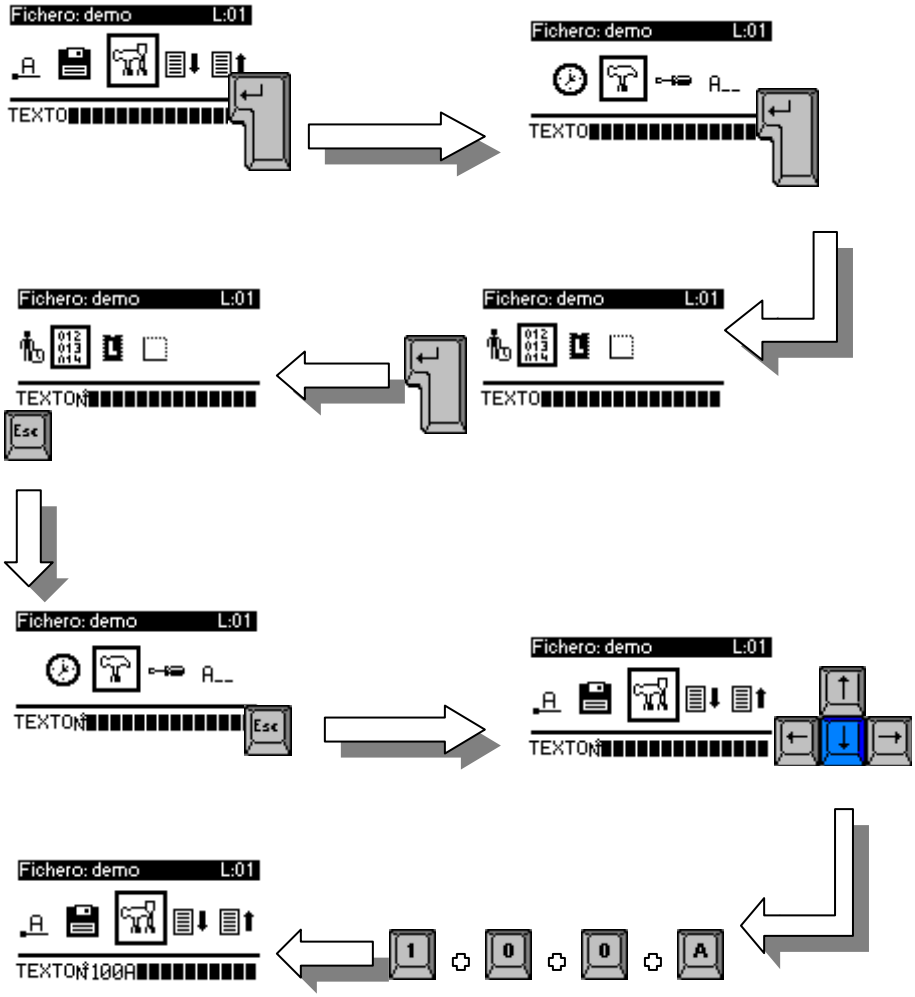


When inserting this character in the text field the code corresponding to the current shift at the moment the marking operation takes place is marked.

> *Before using this option the shifts must be programmed (see section 5.5.1.).*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.8.2.2. Serial number characters



When inserting this character in the text field, all the text that follows it is considered a serial number, right up to the end of the line or until a different number or letter character is found. As a result, every time a marking operation is conducted, and depending on the configuration of the serial number, this increases or decreases and is automatically stored in the memory.

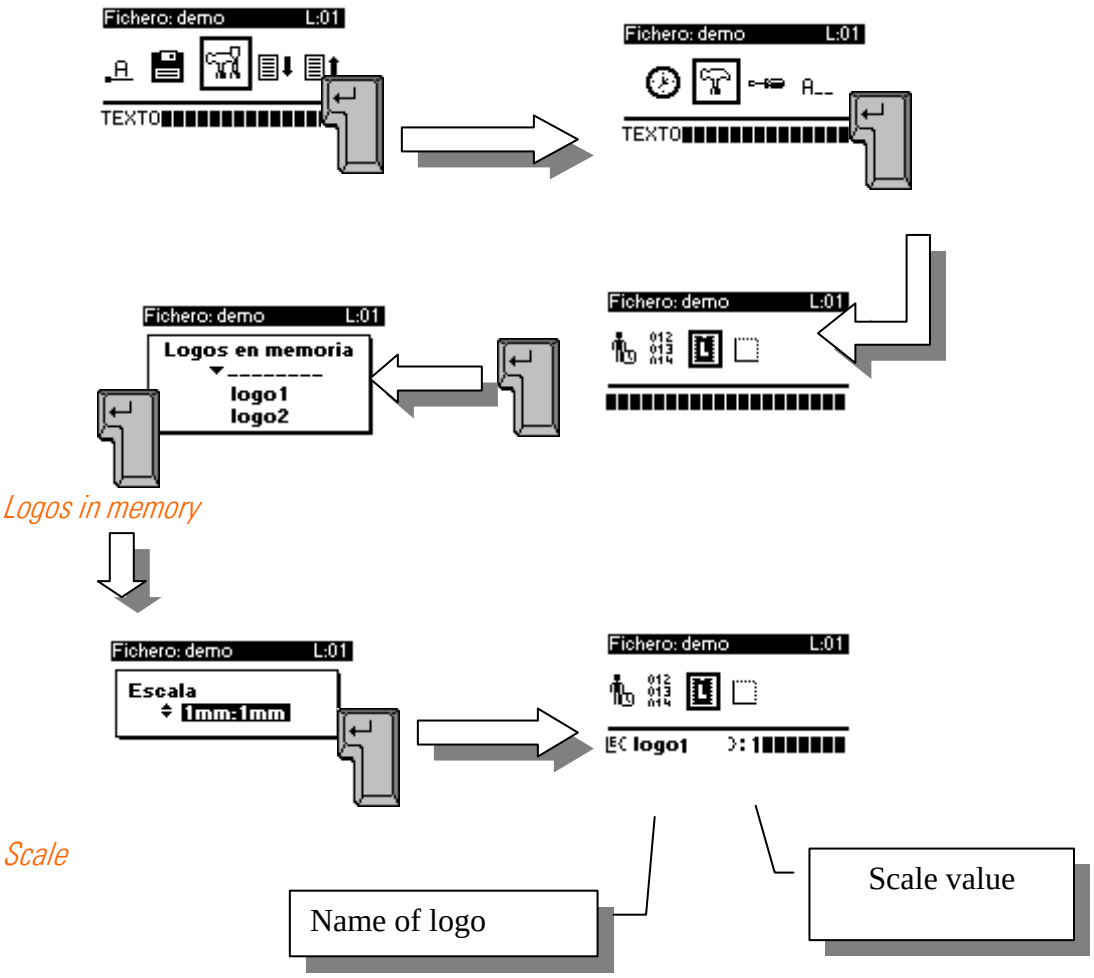
Example:
Text: No.100A (increase=1, repetition=1)
Marking 1:100A
Marking 2:100B
Marking 3:100C
...

The serial number is only updated when it is on the marking screen.

To configure the serial number see section 5.5.3.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.3.8.2.3. Logo characters (standard mode only)



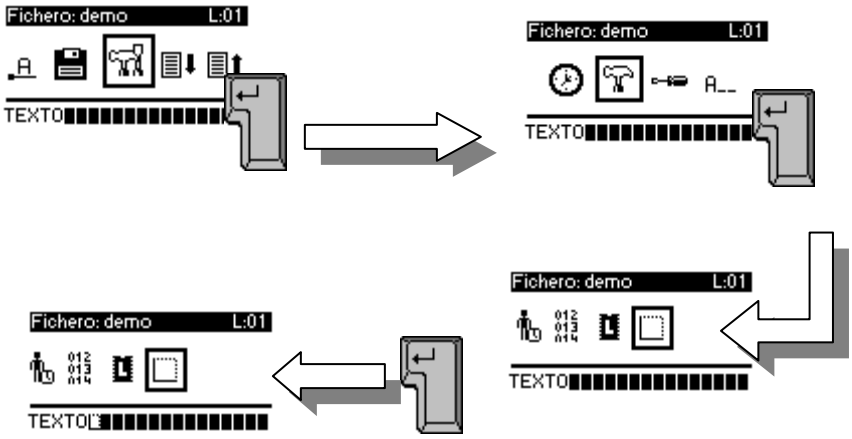
This character is used to mark the logo it refers to. The logos are generated in a PC and are transferred to the marker via RS232. To insert this character select one of the existing logos in the memory and give it a scale value. This scale value multiplies the value of the base size of the logo received via RS232. As result a single logo can be marked using nine different sizes.

To ensure the marking of the logo is checked correctly, the logo should be inserted on an empty line without any other type of characters.

Logos can only be marked in standard mode.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.3.8.2.4. Datamatrix characters (standard mode only)



This character is used to mark a datamatrix consisting of all the characters on the line in question that follow the datamatrix symbol. If, in addition, the following line begins with the datamatrix symbol and is configured as a square matrix, the characters in the second line are included with the characters in the first line and a single matrix is marked. If the datamatrix is configured as a rectangle, the reference of the second line would be for a second matrix.

Example:

Line 1□text1
Line 2□text2 → (square): "text1text2"

Line 1□text1
Line 2□text2 → (rectangular): "text1" "text2"

*The text that is encoded to generate the datamatrix only accepts the following characters: A-Z a-z 0-9 + - / \ < > = ^ { } ( ) [ ] _ \| ? ! " ' , . : ; ~ @ £ $ % & * #*

The text to be encoded can also include the shift character, the calendar characters and the serial number character. When the datamatrix is generated with some of these

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

characters included in the text, the encoding is conducted using the values corresponding to the characters.

Datamatrix can only be marked in standard mode.

Example (day 24, shift 2):

Line 1: textdo No. 001
Marking 1: text to be encoded = text242001
New value line 1: textodo Nº002
Marking 2: text to be encoded = text242002
New value line 1: textodo Nº003
Marking 3: text to be encoded = text242003

If the file is marked from the file edition screen, the serial number character is ignored when the text is codified.

5.3.8.2.5. Other options (standard mode only)

Text via RS232

When this character is inserted in the text field, texts received from the RS232-series port are marked. This option is used to mark keys from JMA's Interactive Key Software programme.

Text via keyboard

When this character is inserted in the text field markings can be made "live", i.e. by typing on the keyboard when the marking operation is being conducted.

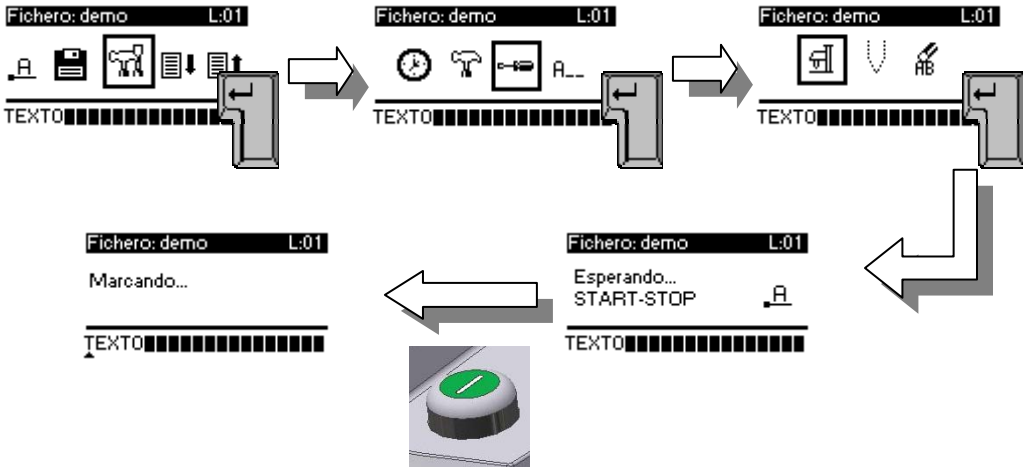
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.8.3 Tools

5.3.8.3.1. Marking a file

The editor can be used to carry out a current file marking test before saving it. This ensures that the right file is generated. When the file is marked using this option the serial number is not updated, i.e. it retains its initial value.

If selecting Template Mode (see section 5.3.1), this option uses four dots to mark the four vertices that define the marking window. This procedure provides a visual display of the area in question.



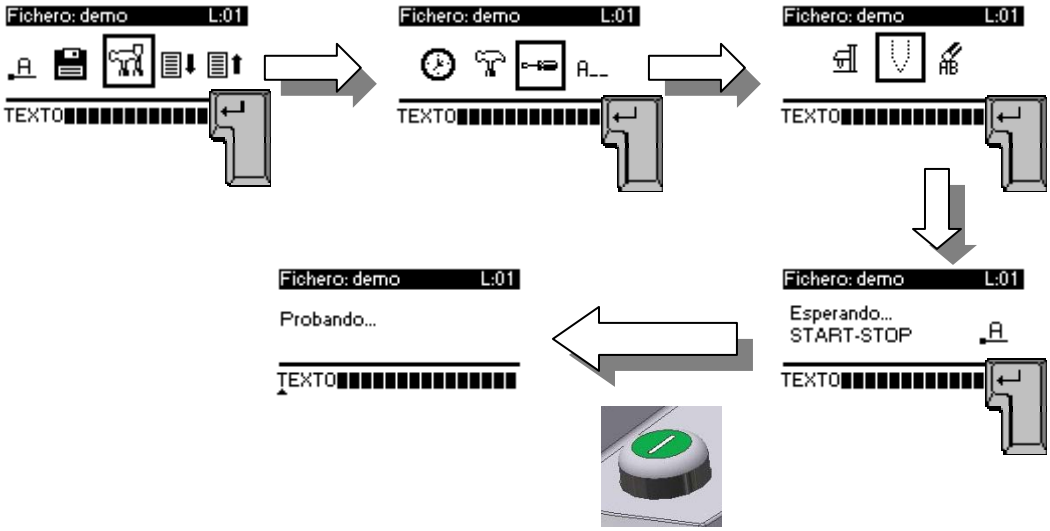
Marking
Waiting

> *A marking test can be carried out in both standard and template mode by pressing the F3 key when in the text insertion field.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.3.8.3.2. Empty run

The editor can be used to conduct a test that determines whether the file being created fits inside the margins of the marking area. This test moves the punch in the area where the text is marked but without the marking operation actually being conducted.



Testing

Waiting

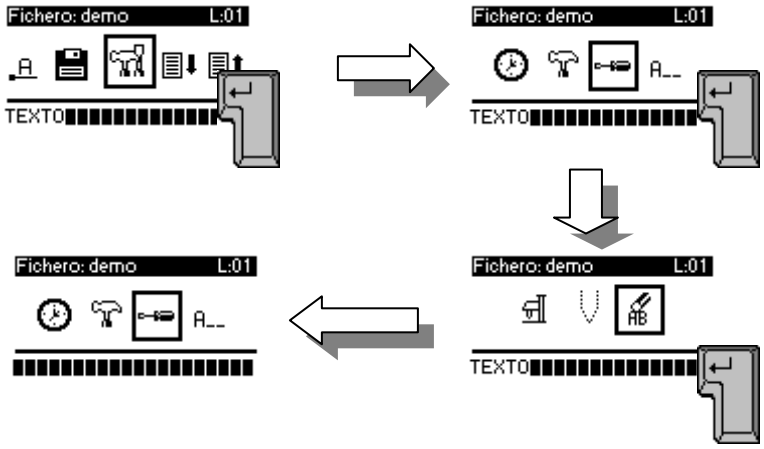
> *This option does not perform the empty run for a logo or for a datamatrix.*

> *This operation can also be conducted by pressing the F4 key when in the text insertion field.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.3.8.3.3. Erasing a line

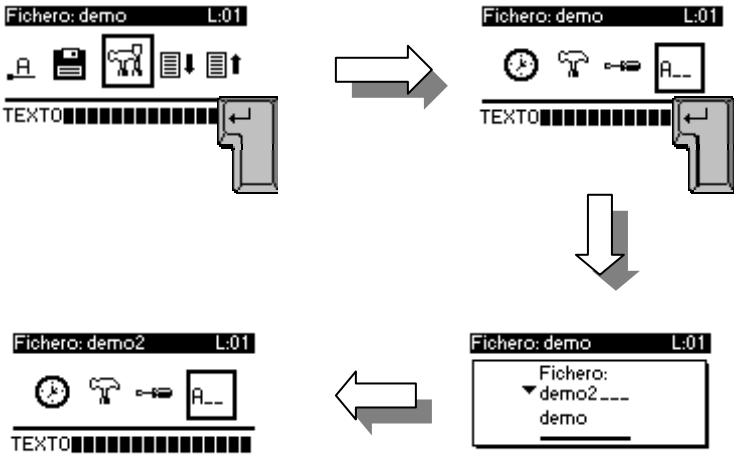
When deleting a line of text completely, the lines following the erased line are moved to a position immediately afterwards.



> *This operation can also be carried out by pressing the F10 key when in the text insertion field.*

5.3.8.4 Renaming a file

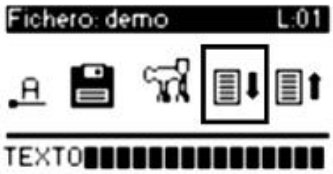
This option enables the duplication of a text file. To do this open a file with the editor and change its name. Do not forget to save the change before exiting. This process creates two identical files with different names.



> *This operation can also be carried out by pressing the F6 key when in the text insertion field.*

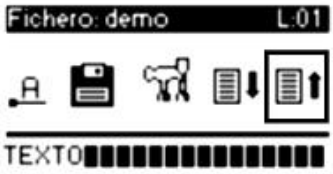
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.3.9 Next line



This option is used to move to the next line in the text insertion field.

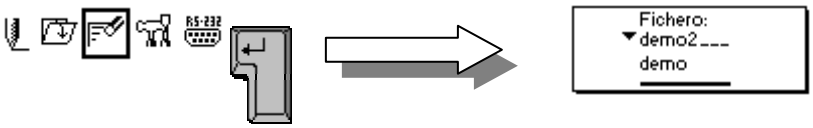
5.3.10 Previous line



This option is used to move to the previous line in the text insertion field.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.4. Erasing a file



If the memory is full of text files, these can be deleted individually in order to generate new files.

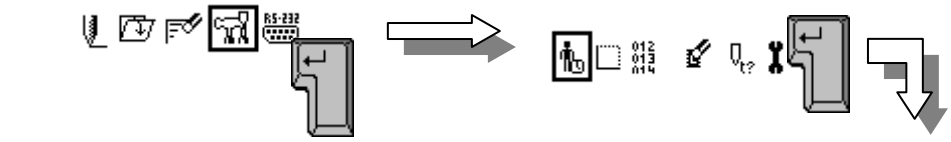
No more than 126 text files can be stored in the memory.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

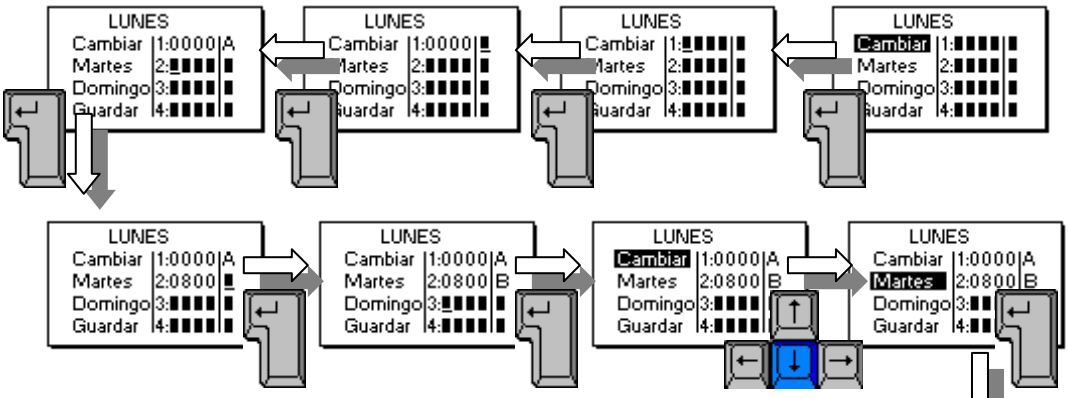
5.5. Configuration

5.5.1 Shift configurations

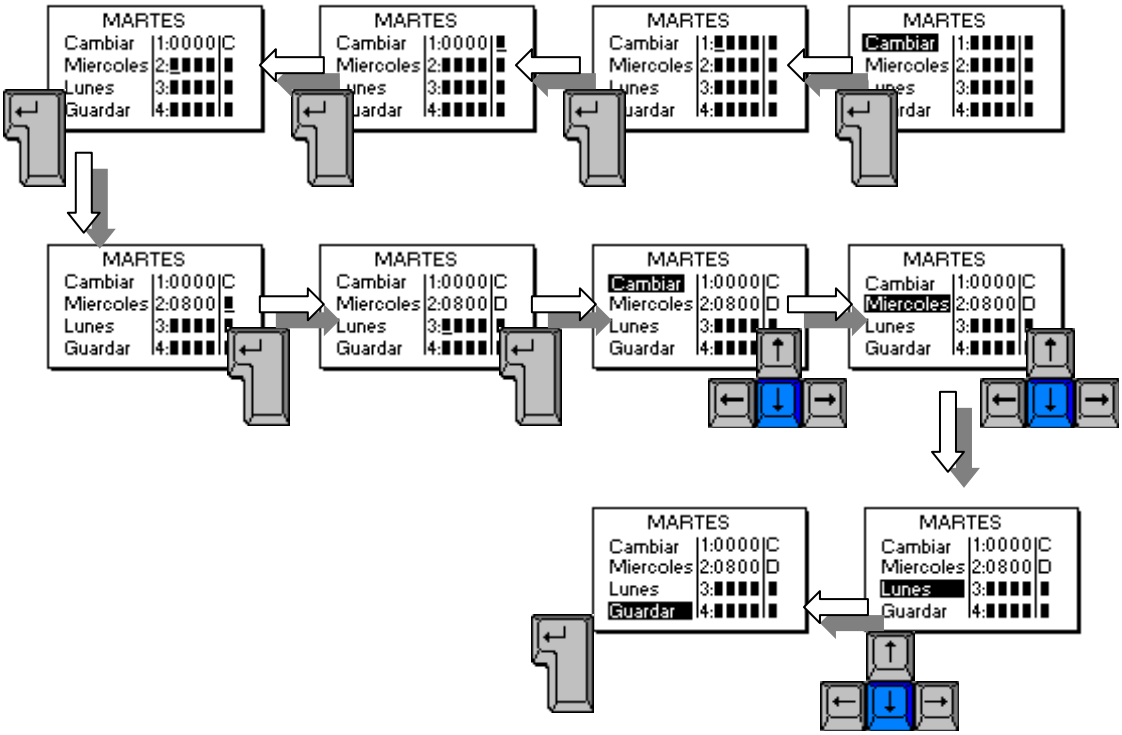
Up to four shifts can be configured for each of the seven days of the week. The code representing each shift is programmed individually for each shift. The shifts can be programmed to overlap with each other between different days of the week. This means shifts can be programmed for a period exceeding the 24 hours in a day.



MONDAY Change Tuesday Sunday Save



TUESDAY Change Wednesday Monday Save

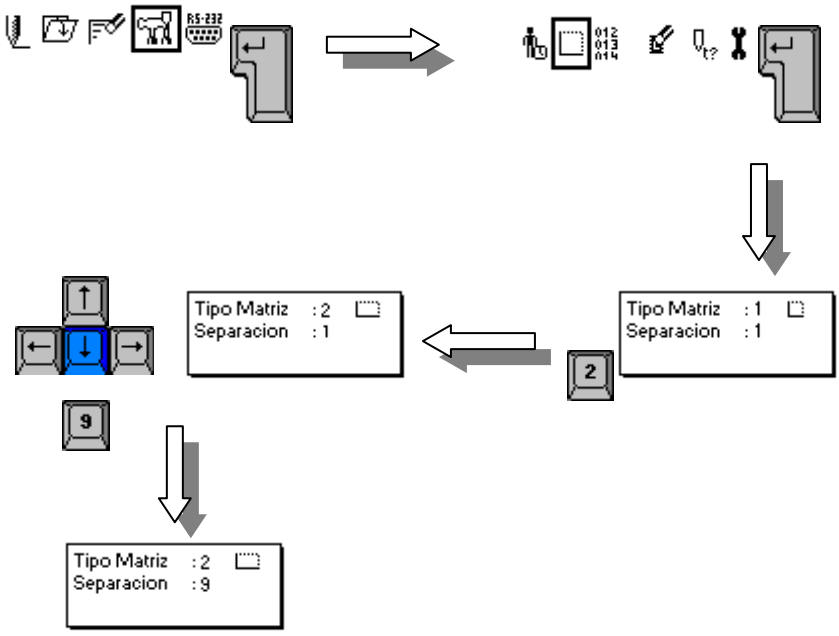


The codes for each shift can consist of numbers (0-9) or characters (a-z,A-Z).

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.5.2 Configuring a datamatrix

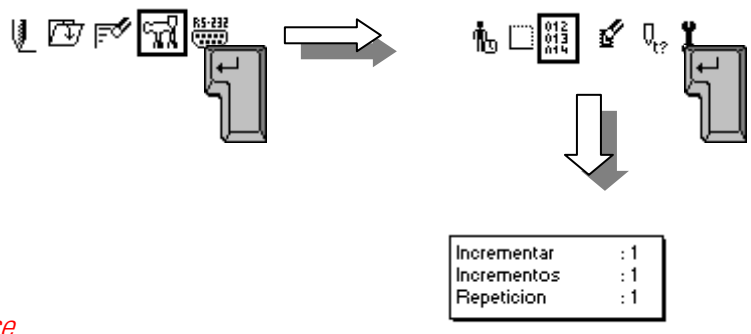
Before marking a datamatrix the shape must be configured (square or rectangular) as well as the spacing between the dots (0.1 mm - 0.9 mm).



Matrix type
Spacing

5.5.3 Configuring the serial number

The variations in the serial number can be increases (increase:1) or decreases (increase:2). Each variation in the serial number can be between 1 and 9 increases/decreases ('Increases' option). Serial numbers will vary after being marked 1 to 9 times. This parameter is configured in the 'Repetition' option

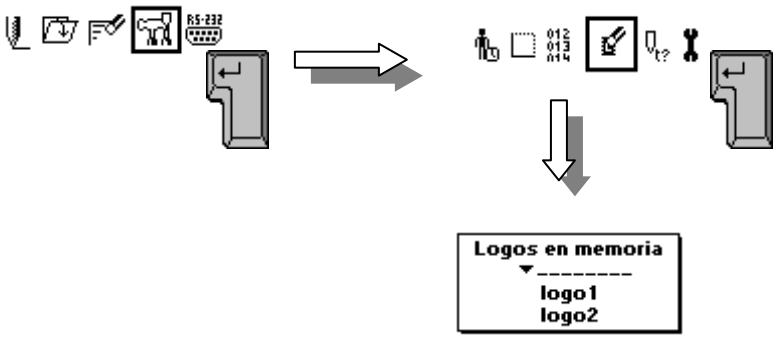


Increase
Increases
Repetition

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

5.5.4 Erasing logos from the memory

The logos stored in the marker memory can be deleted individually to free up space in the memory and to carry out new transfers. When deleting a logo care must be taken with any files containing text that refers to that logo, as the file will not be able to find the logo in the memory during the marking operation.

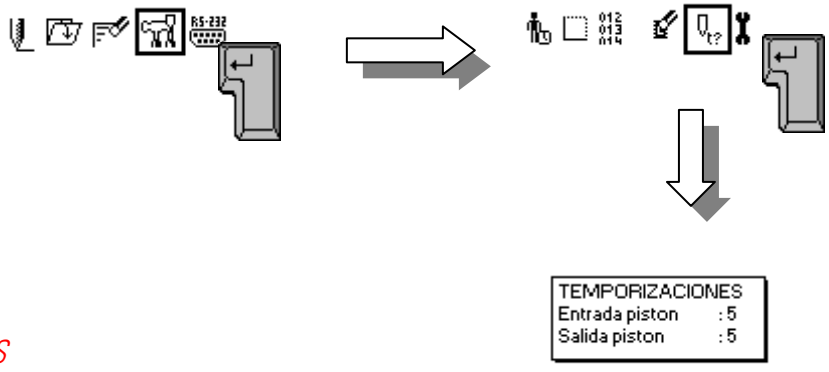


Logos in memory

5.5.5 Configuring the punch

5.5.5.1 Pneumatic models

On pneumatic marker models the punch activation time can be increased or decreased when marking a character, as can the punch deactivation time once the character has been marked.

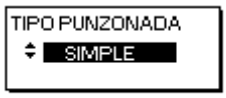


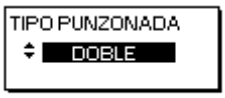
TIMINGS
Piston input
Piston output

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.5.5.2 Solenoid models

On solenoid-type marker models the punch can be configured so that each dot is marked with a single or double movement of the punch (only for a marking force equal to 9).





PUNCHING TYPE
SINGLE
DOUBLE

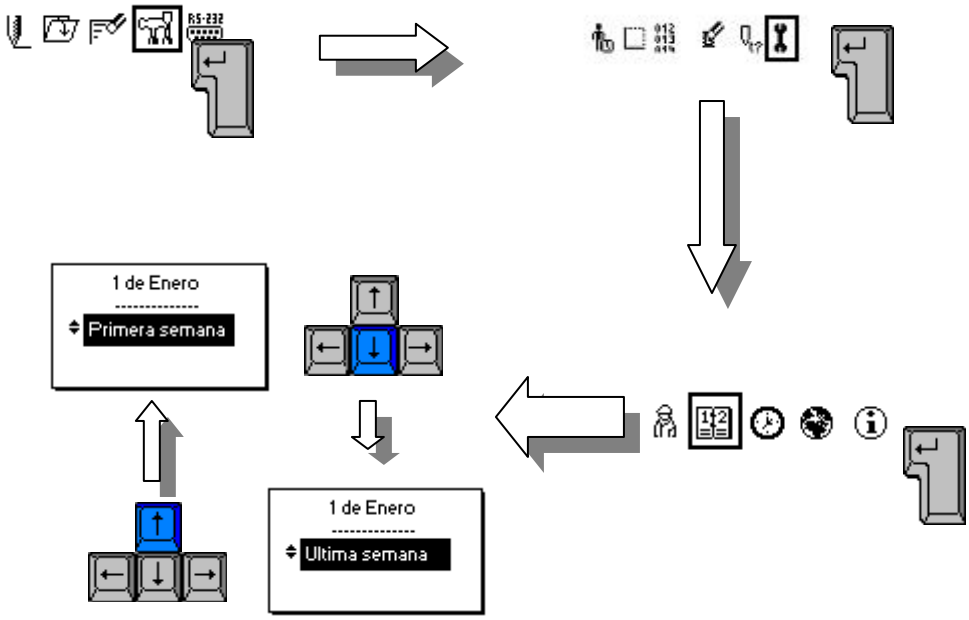
5.5.6 Other options

5.5.6.1 Special options

This option is not available.

5.5.6.2 Calendar

This option can be used to configure the date 1 January as part of the last or the first week of the year.



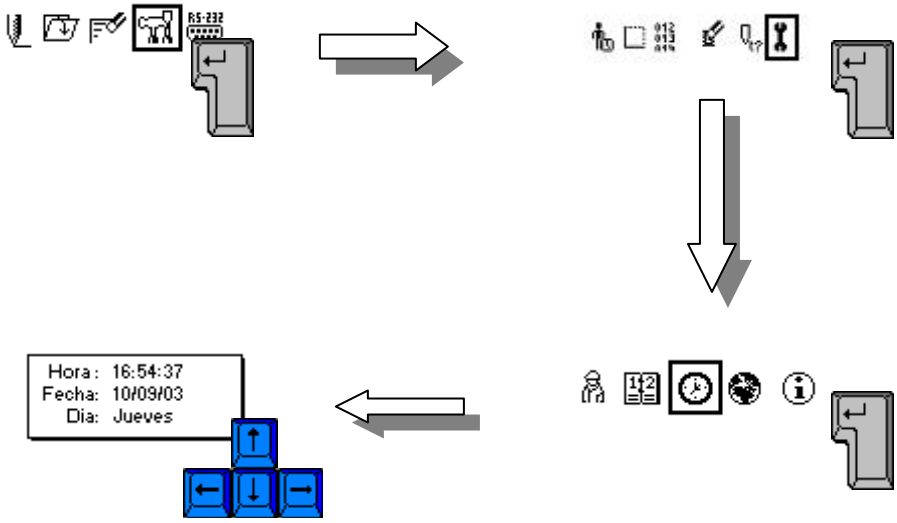
1 January
First week
Second week

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.5.6.3 Configuring the clock

This option is used to configure the marker's internal clock.

> *The clock format is as follows:*
> *Hours:minutes:seconds*
> *Day/Month/Year*
> *Monday-Sunday*
>
> *Use the up/down arrows to change the values and the left/right arrows to change the field.*



Time:
Date:
Day: Thursday

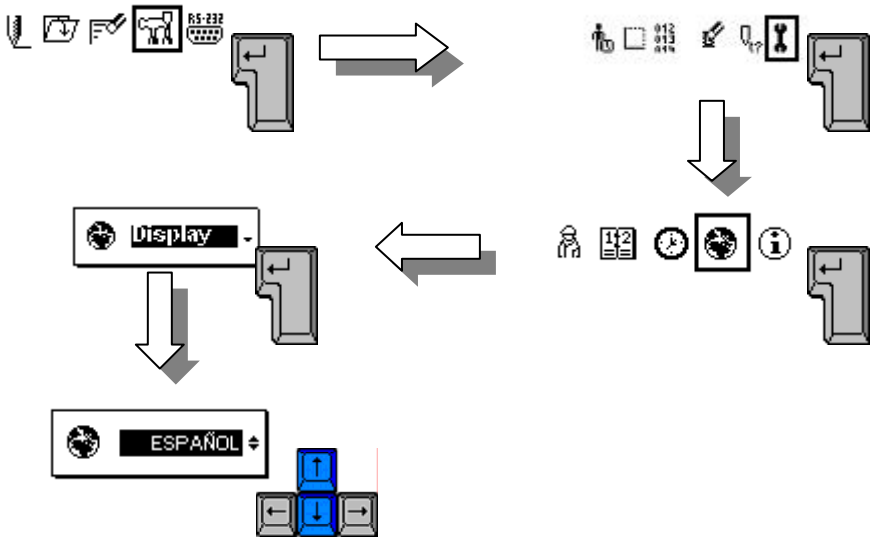
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

5.5.6.4 Changing the language

5.5.6.4.1. Screen language

The MULTI-MARK marking machine has been set up to operate in six different languages: Spanish, English, Italian, French, German and Portuguese.

Use the up/down keys to select a new language and press ENTER.

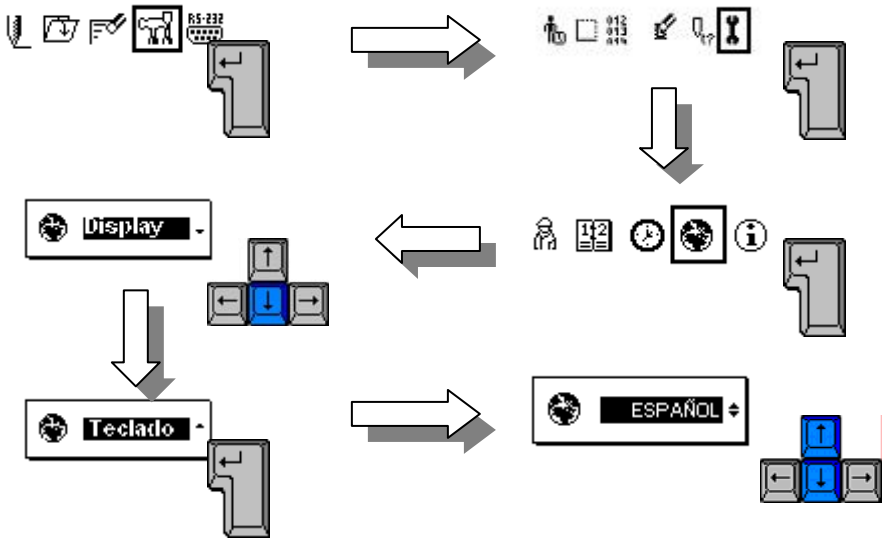


SPANISH

Use the up/down keys to select a new language and press ENTER.

5.5.6.4.2. Keyboard language

As the arrangement of the keys on a keyboard vary from country to country, the keyboard language must be set correctly.



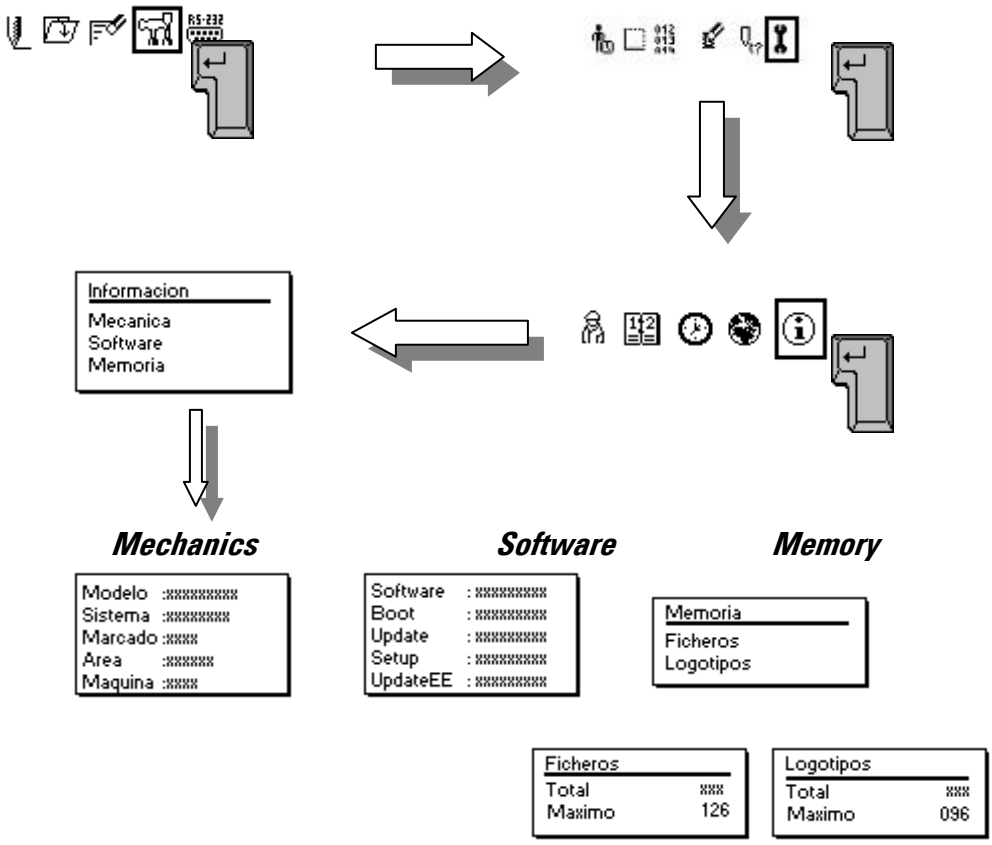
Keyboard

Use the up/down keys to select a new language and press ENTER.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.5.6.5 General information

This option shows information on the marking machine including the software it can use, the software version and the amount of files and logos stored in the memory.



Information Mechanics Software Memory
Model System Marking Area Machine
Memory Files Logos
Files Total Maximum

5.5.6.5.1. Mechanics

The marking machine displays information on the mechanics that must be connected to the electronics:

- *Model: type of mechanics (portable or fixed)*
- *System: linear or differential mechanics*
- *Marking: marking with a reel (S-4, S-8) or using air (N-14, N-20, N-40)*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *Area: maximum dimensions of the marking area (160100 = 160 mm wide x 100 mm high)*
- *Machine: number of the electronics*

5.5.6.5.2. Software

The marking machine displays information on the software installed:

- *Software: Version of general programme: x.yy.zzz (general.adaptation.internal use)*
- *Boot: Version of the start-up programme: x.yy (general.adaptation)*
- *Update: Version of the update programme: x.yy (general.adaptation)*
- *Setup: Version of the special options programme: x.yy (general.adaptation)*
- *UpdateEE: Version of the update programme change programme: x.yy (general.adaptation)*

5.5.6.5.3. Memory

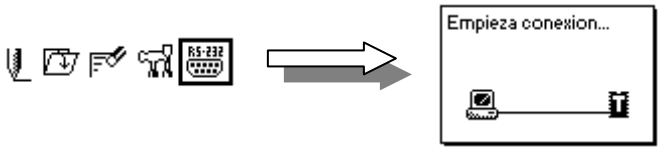
Shows the maximum amount of text files and logos that can be stored as well as the amount currently being stored.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

5.6. Communications

The marking machine can store up to 96 logos in its memory.

To receive a logo from the PC switch the MULTI-MARK to logo reception mode and then transfer the required logo using the correct programme.
If a problem occurs during the transfer, a message will appear on the MULTI-MARK screen.
If the name of the logo received coincides with the name of a logo stored in the MULTI-MARK memory, you will be asked to confirm the transfer before it is overwritten.



Start connection

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

6. MAINTENANCE

6.1. Auto-checking

When the machine is switched on an auto-check is conducted of different parts of the machine before the main menu appears. If an error occurs during the checking procedure a message will appear on the screen.

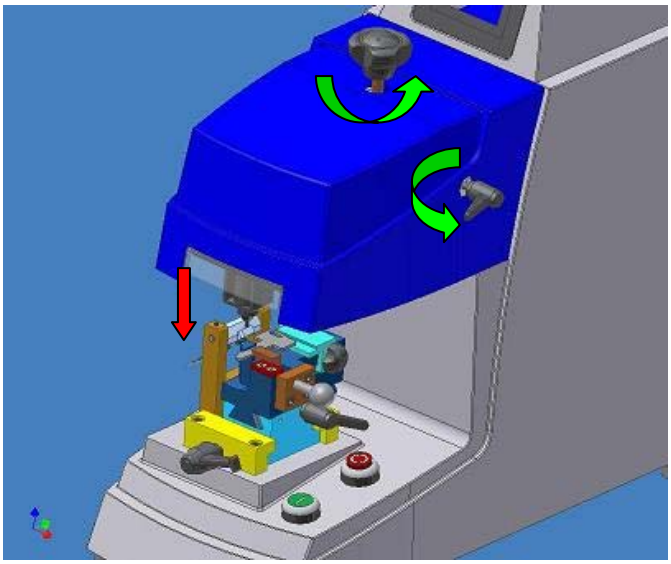
- ***Control pad connection fault:*** *Either the Run/Stop control pad is not connected or there is a problem with the connection cable.*
- ***Mechanical configuration:*** *check the mechanical configuration of the programme.*
- ***Fault in x motor or x photoswitch (belt mechanics):*** *if the x-axis motor fails to move, there is a fault with the motor. Check the connections to the motor. If, however, the x motor is moving, this means there is a fault in the x-axis photoswitch. In this case check the photoswitch connection and make sure the photoswitch is clean.*
- ***Fault in y motor or y photoswitch (belt mechanics):*** *if the y-axis motor fails to move, there is a fault with the motor. Check the connections to the motor. If, however, the y motor is moving, this means there is a fault in the y-axis photoswitch. In this case check the photoswitch connection and make sure the photoswitch is clean.*
- ***Fault in motors 1 and 2 or x photoswitch (differential mechanics):*** *if motor 1 or motor 2 fail to move, there is a fault with the motors. Check the connections to each motor. If, however, the motors are moving, this means there is a fault in the x-axis photoswitch. In this case check the photoswitch connection and make sure the photoswitch is clean.*
- ***Fault in motor 2 or photoswitch y (differential mechanics):*** *if motor 2 fails to move, there is a fault with the motor. Check the connections to the motor. If, however, the motor is moving, this means there is a fault in the y-axis photoswitch. In this case check the photoswitch connection and make sure the photoswitch is clean.*
- ***Battery fault:*** *the external clock battery is below the voltage threshhold and must be replaced.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

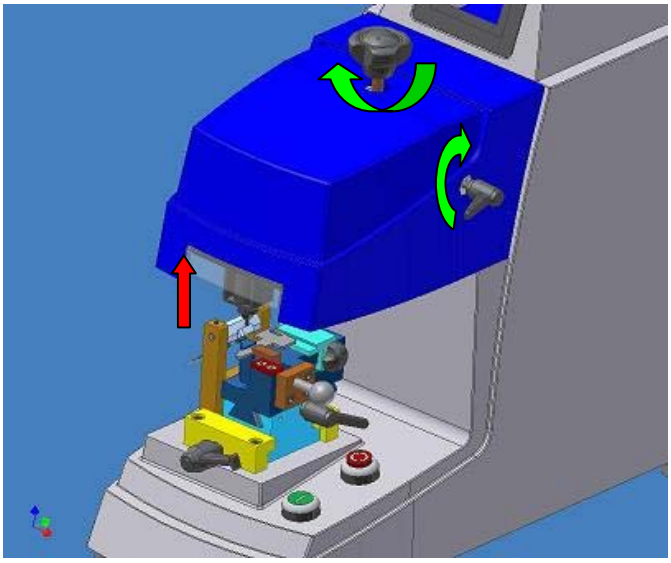
6.2. Adjusting the Z axis

The height of the head must be adjusted according to the thickness of the key or plate to be marked to ensure that the marking operation is performed correctly.

- *Loosen the Z-axis locking lever and then turn the Z-axis adjuster lever until the punch is touching the surface to be marked.*



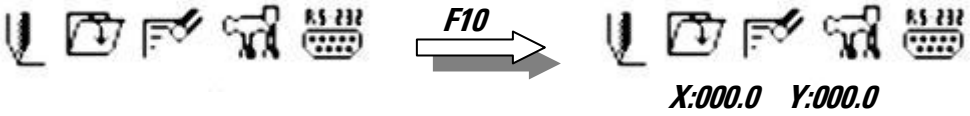
- *Once the punch is touching the surface to be marked, turn the Z-axis adjuster lever three half turns. Then tighten the Z-axis locking lever.*



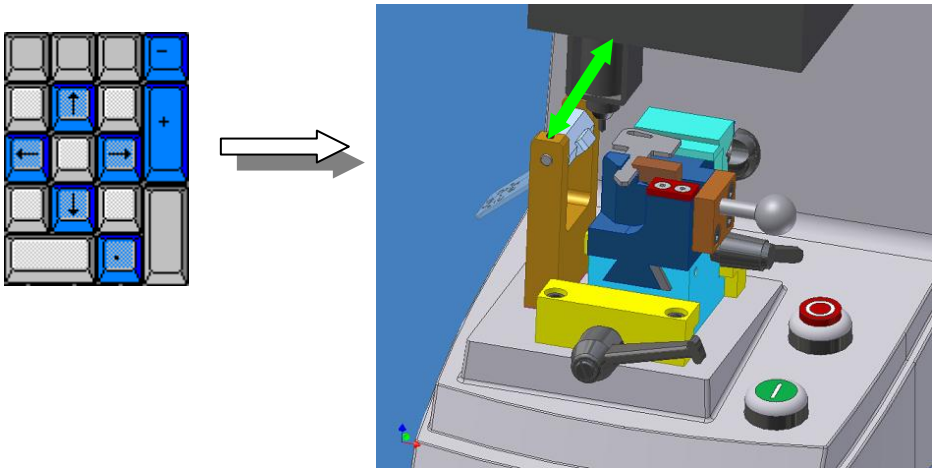
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

6.3. Adjusting the zero setting

- *When in the main screen press the F10 key on the keyboard.*



- *Use the direction keys to move the punch until it coincides with the centre of the window viewer. Use the + and – keys to increase or decrease the displacement spacing to one of its three possible values: 0.1 mm, 1 mm or 5 mm (default value).*



> *When moving the punch rotate the window viewer to the rest position.*

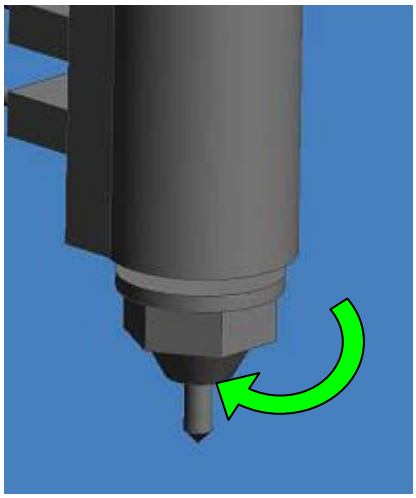
- *Press the Enter key.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es
Member of Altuna Group

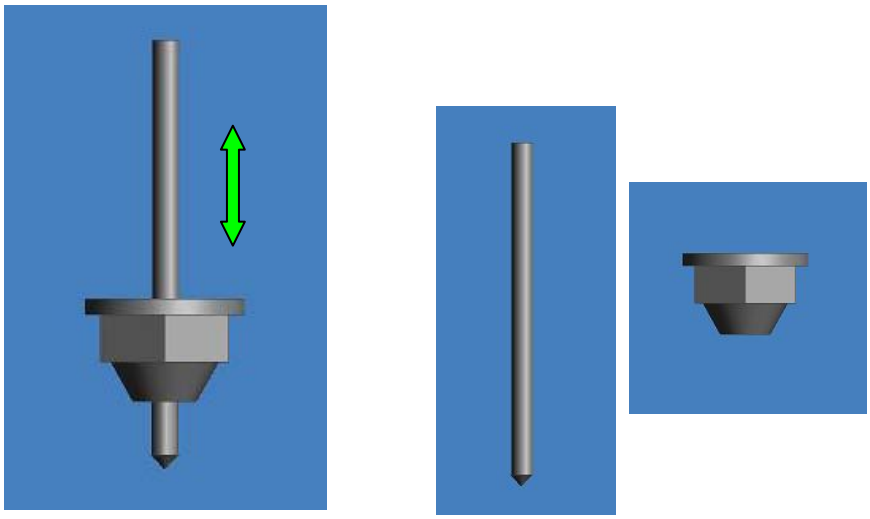
6.4. Changing the tip

When the tip of the punch is worn it should be replaced by another similar tip. Follow the procedure below to replace it.

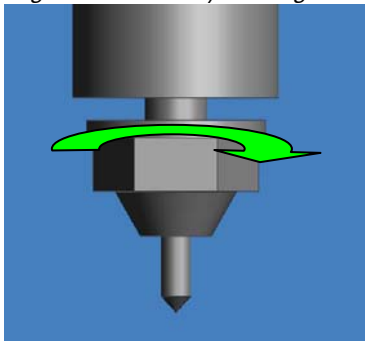
- *Loosen the nut holding the tip in place with a size-16 hexagonal key.*



- *Remove the worn tip and insert a new one.*



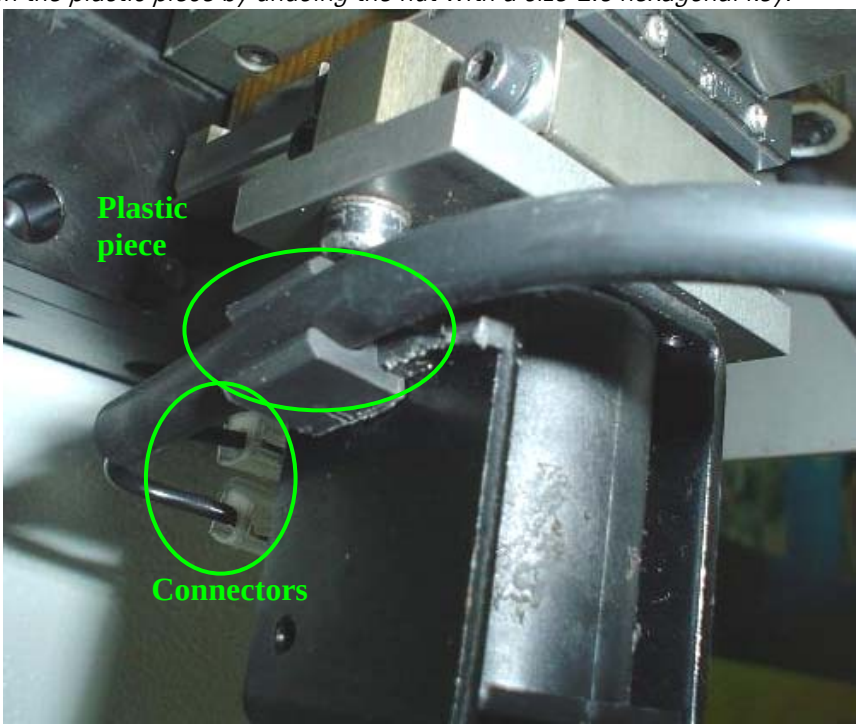
- *Use the hexagonal key to tighten the nut by turning it in the opposite direction.*



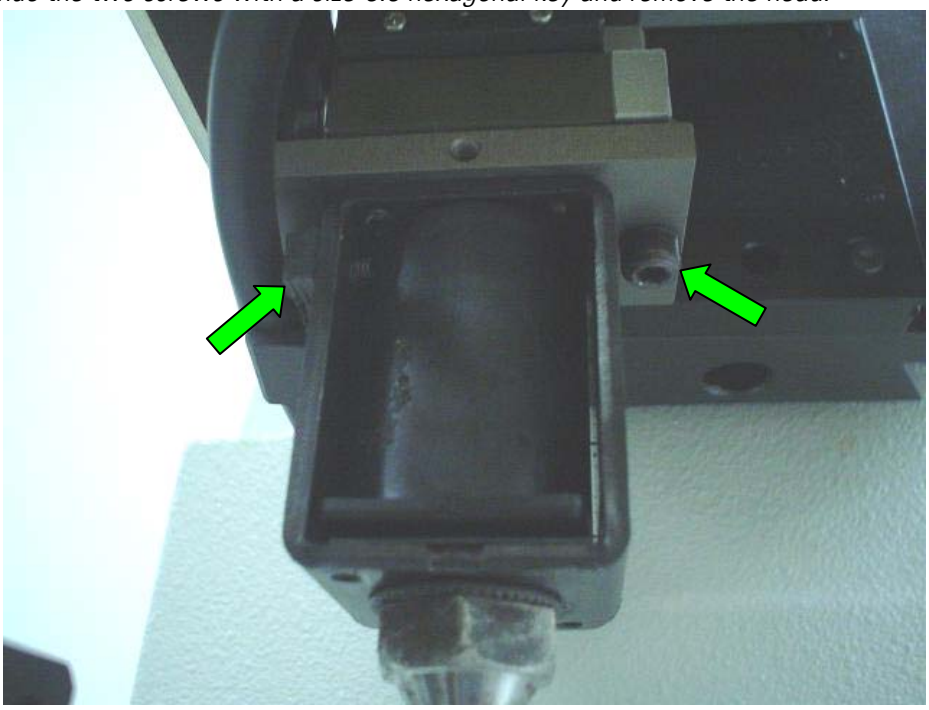
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

6.5. Changing the reel

- *Remove the clamp to create sufficient space to then remove the head.*
- *Loosen the two connectors positioned at the back of the head. These connectors can be removed simply by pulling them outwards.*
- *Loosen the plastic piece by undoing the nut with a size-2.5 hexagonal key.*

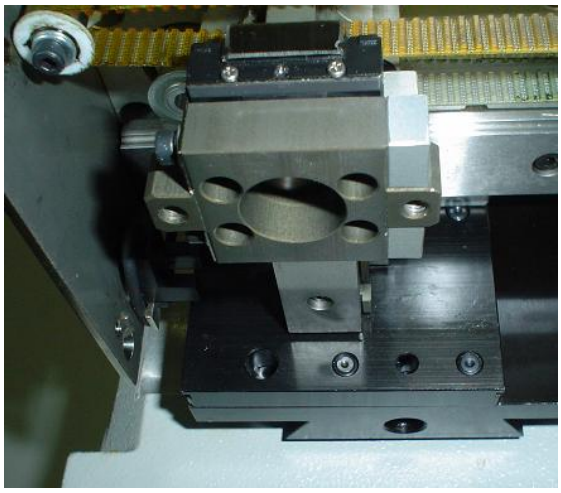


- *Undo the two screws with a size-3.5 hexagonal key and remove the head.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *After removing the head the machine will have the appearance below. Then fit the new head following the same steps in reverse order.*



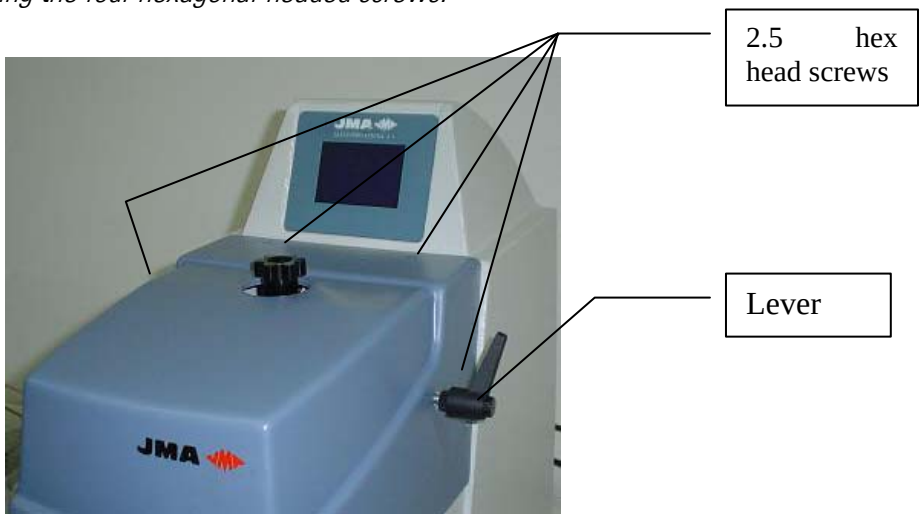
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

6.6. Belt maintenance

If the characters appear to be misaligned, the belts may be slack or worn, and must be tightened or replaced.

6.6.1 Replacing the belts

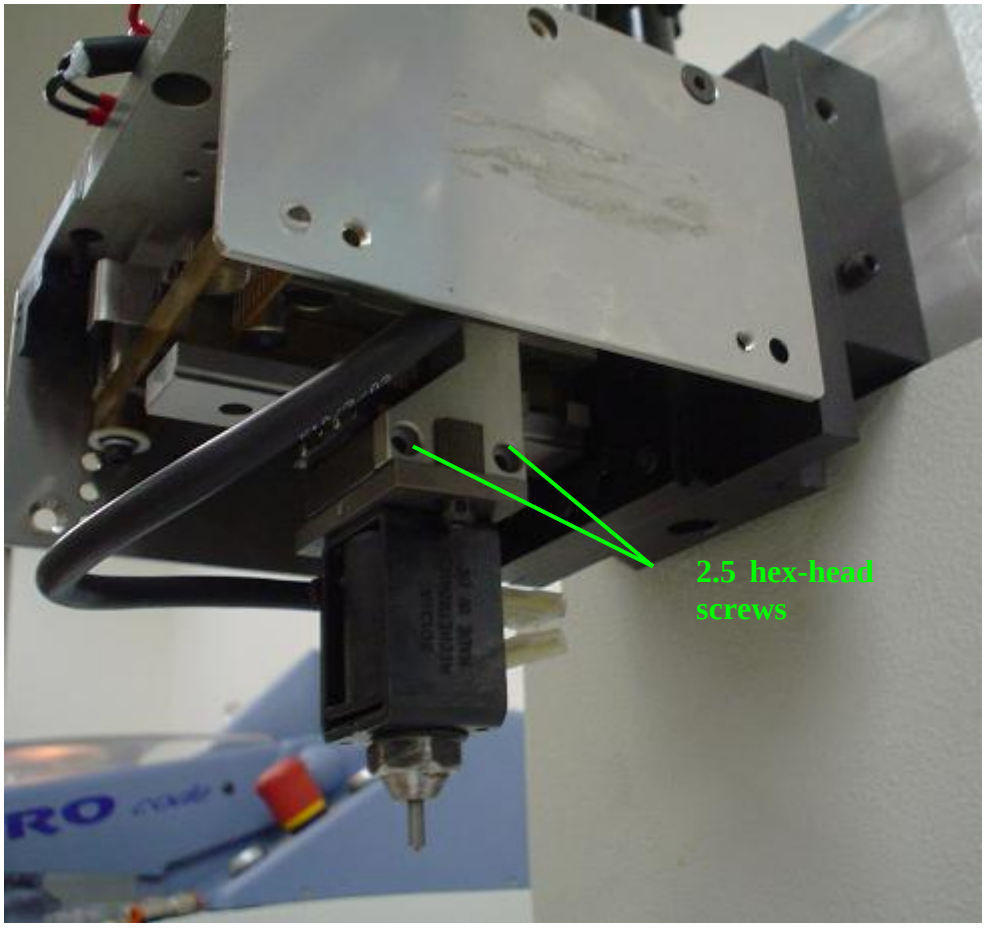
- *Remove the protective cover by first of all turning the lever to remove the side screw and then loosening the four hexagonal-headed screws.*



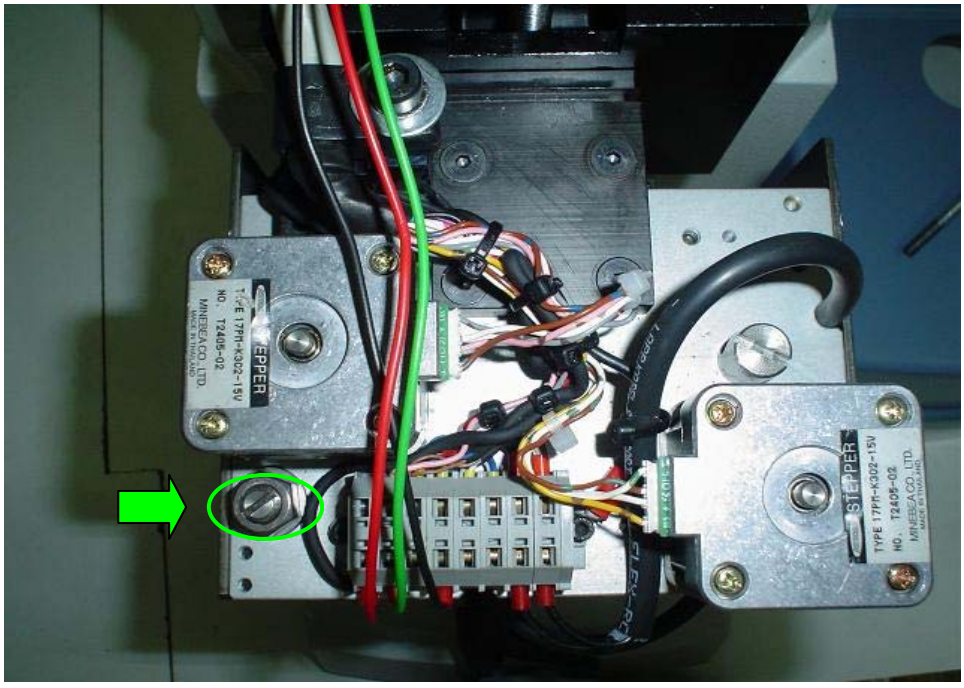
The head will then appear as below.

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

- *Once the cover has been removed the belts can be changed. Loosen the following screws first of all.*

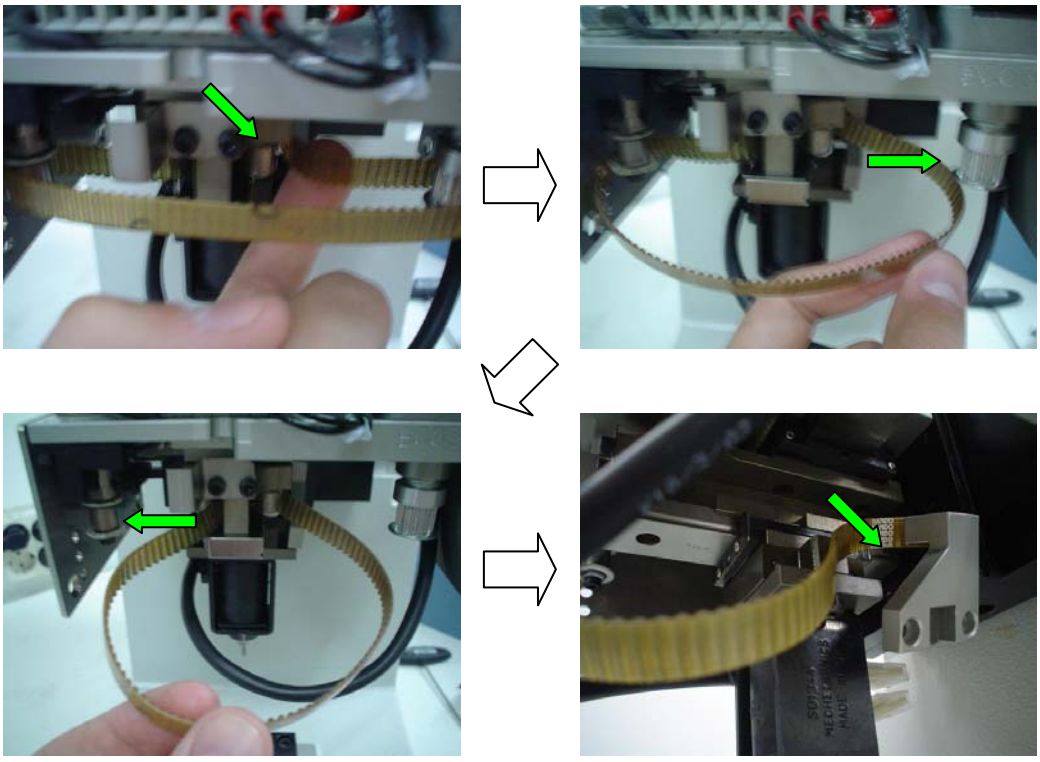


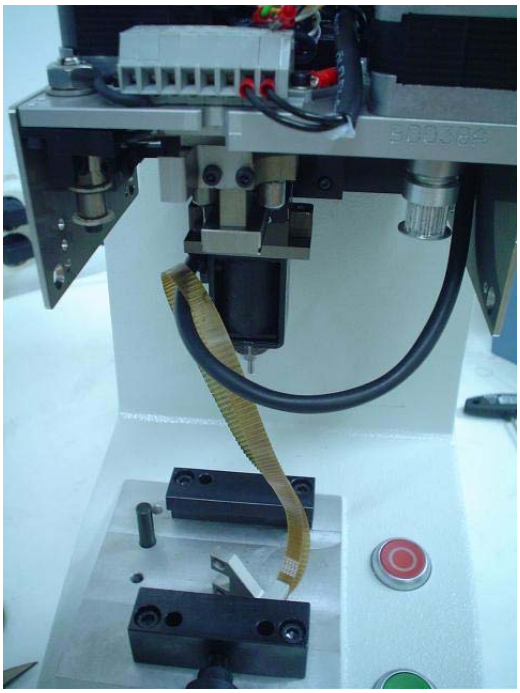
- *Loosen the belt by turning the eccentric screw ringed below.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

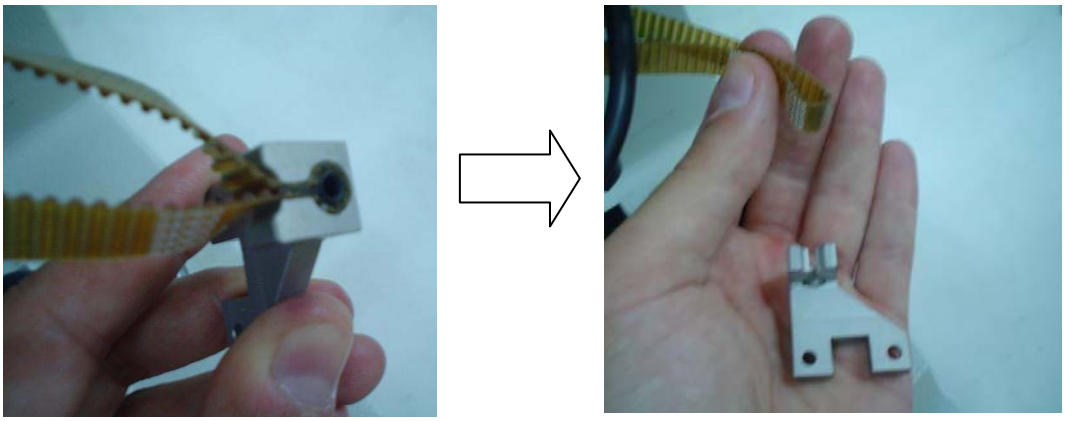
- *Remove the belt as shown in the photos.*



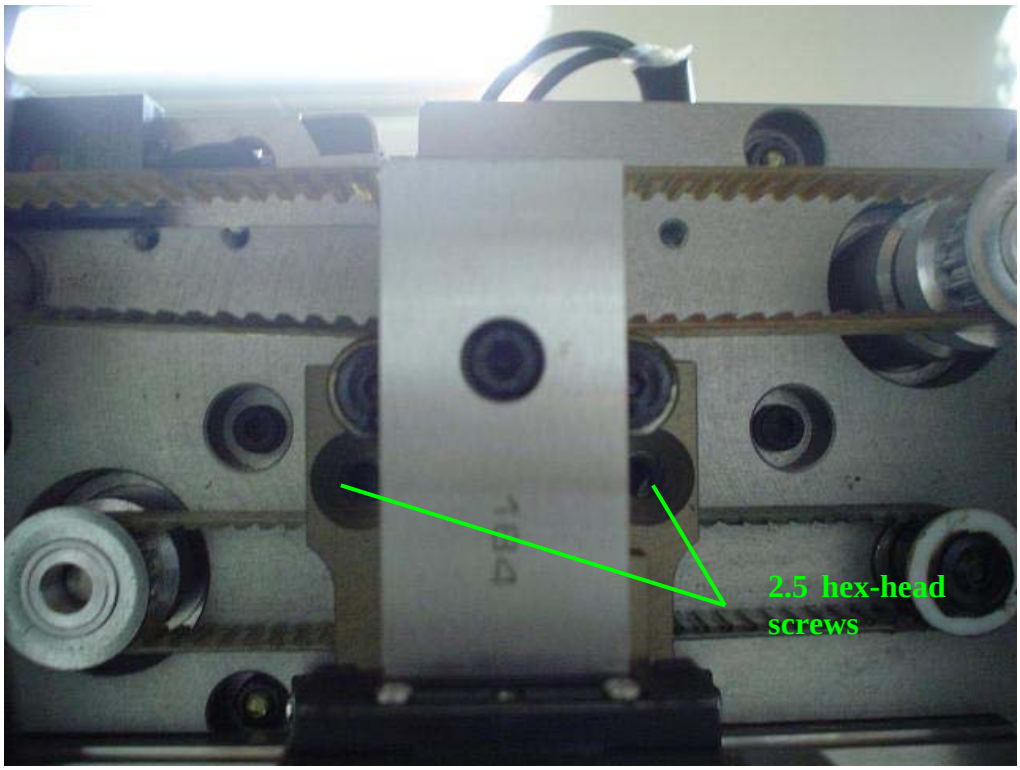


Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

- *Remove the belt from the metal part by turning the stay screw with a size 2.5 hexagonal key.*

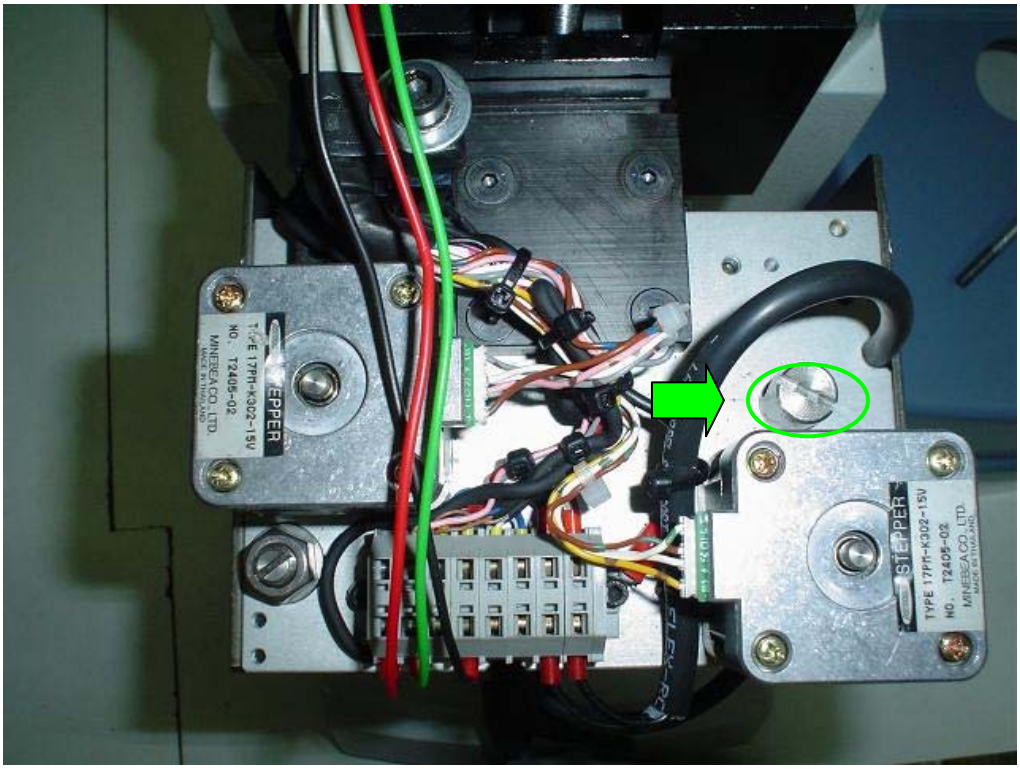


- *Loosen the other belt. Then take out the 2.5 hex-head screws.*

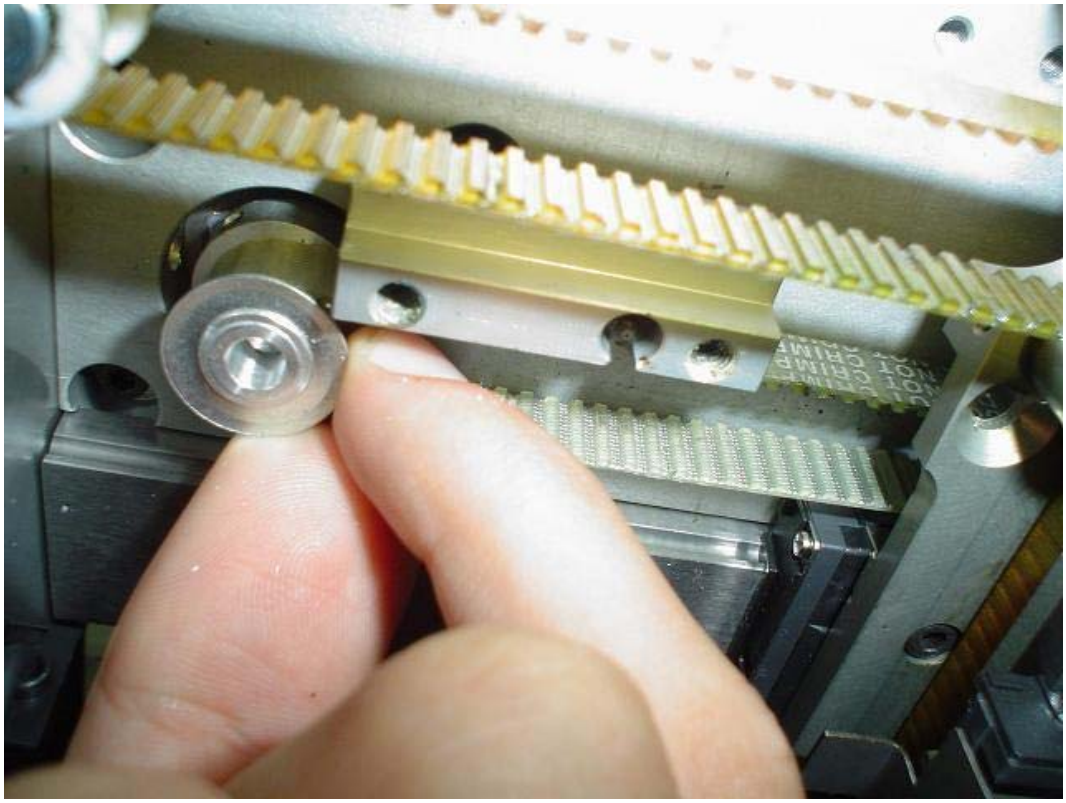


Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *Loosen the belt by turning the eccentric screw pictured below.*



- *Remove the belt.*



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

- *Detach the belt from the metallic part by unscrewing the stay screw with a size-2.5 hexagonal key, in the same way as with the other belt.*

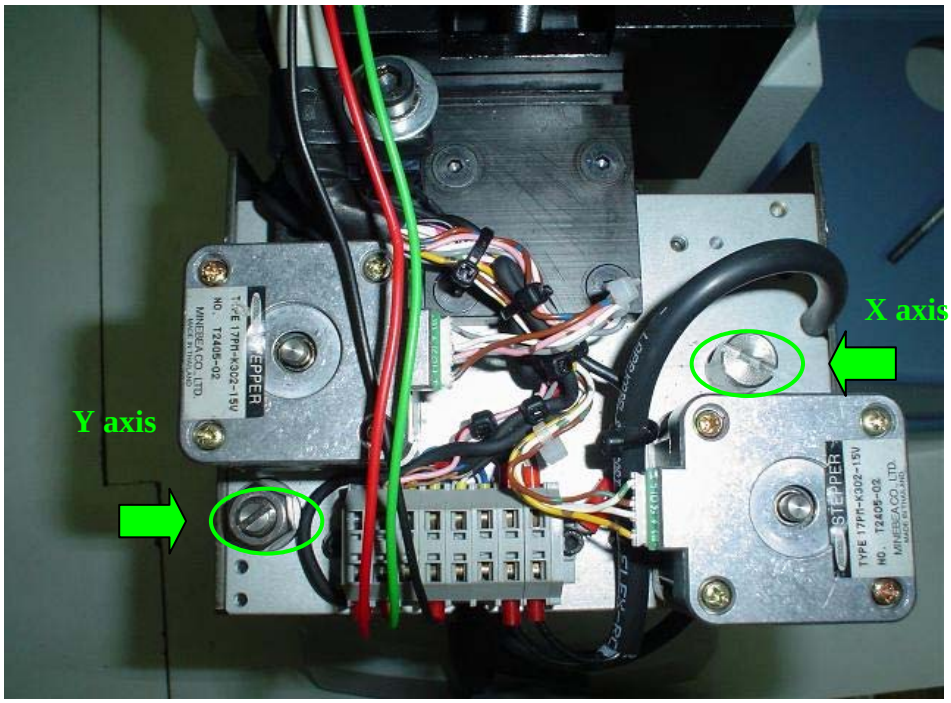
- *Fit the new belts by repeating the same steps in the reverse order. See the following section 6.5.2 to tighten the belts.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

6.6.2 Tightening the belts

- *Remove the protective cover following the same steps as above.*

- *Turn the two eccentric screws to tighten/loosen the belts. Eccentric screw no. 1 is used for the X axis. Eccentric screw no. 2 is used for the Y axis. Do not tighten the belts too much as this may exert too much pressure on the slide.*



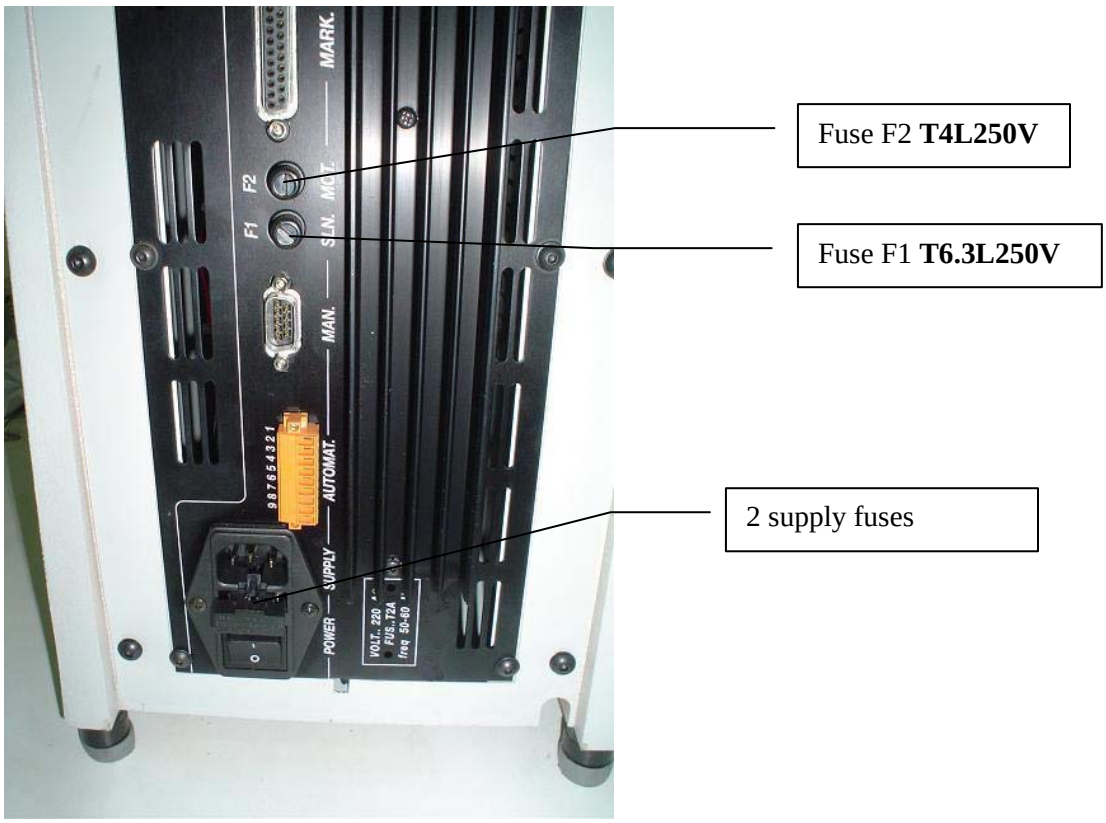
- *Put the protective cover back on again.*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es

6.7. Replacing the fuses

Any damaged fuses should be replaced by similar fuses. All fuses should be tested before being fitted as they may be faulty.

The MULTI-MARK has a total of four fuses, all of them positioned at the back, as the photo below shows. The fuses are easy to access and there is no need to open up the machine to reach them.



- ***F2:*** *4A and 250V delayed fuse*
- ***F1:*** *6.3A and 250V delayed fuse*
- ***Supply fuses:*** *2A and 250V delayed fuses*

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

7. TROUBLESHOOTING

- ***The machine does not switch on***
  Check that the machine is connected to the mains supply properly. Check that the power cable is properly connected and that the fuses are intact.

- ***The machine switches on but the head does not move***
  Check that the fuses are intact.

- ***The machine switches on but the message "Control-pad connection fault" appears***
  Check that the rear head connector is properly connected.

- ***The keyboard does not work or the button functions have changed***
  Check that the keyboard is properly connected at the rear of the machine. Check that the keyboard is properly configured (see section 5.5.6.4.2).

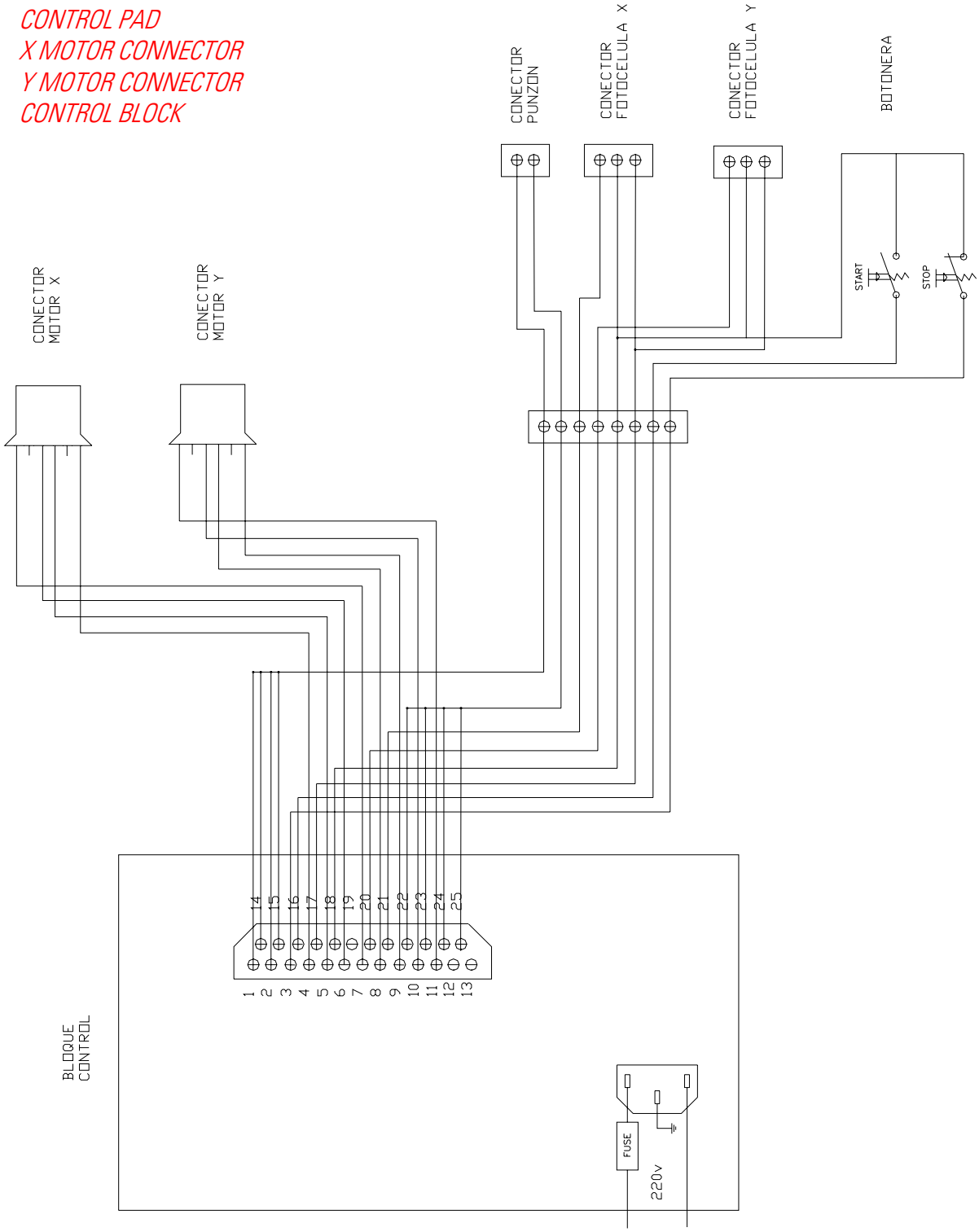
- ***The marking is misaligned or deformed***
  Check the belts and tighten them if necessary (see section 6.5.2).

- ***The marking is off-centre***
  Check that the key positioned in the clamp is properly centred in relation to the window viewer. Reset to zero again (see section 6.3).

Tel. +34 943 79 30 00
Fax +34 943 79 72 43
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
www.jma.es
jma@jma.es
Member of Altuna Group

8. ELECTRICAL DIAGRAM

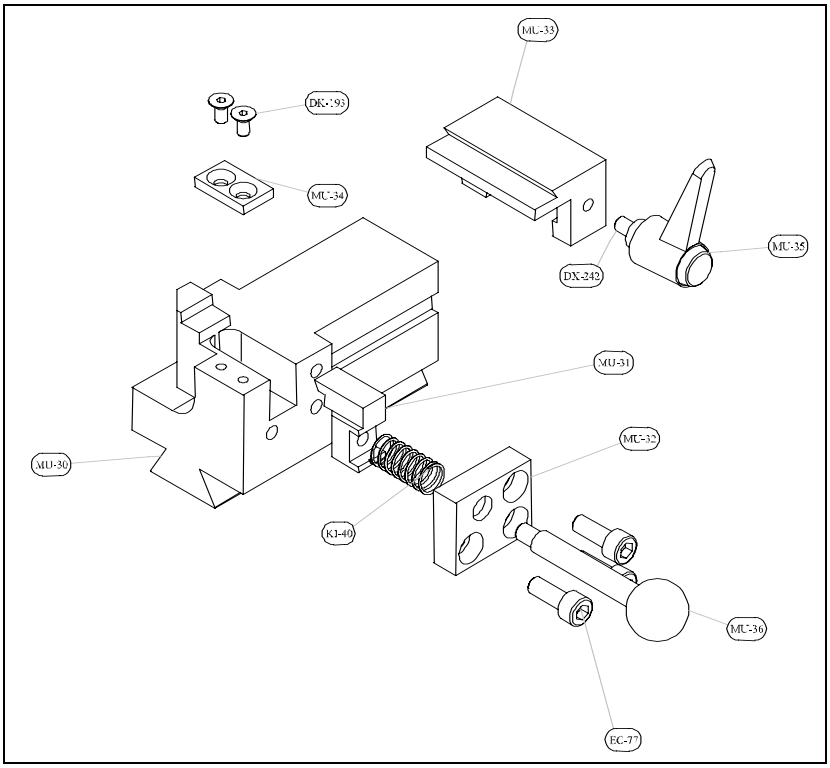
PUNCH CONNECTOR
X PHOTOSWITCH CONNECTOR
Y PHOTOSWITCH CONNECTOR
CONTROL PAD
X MOTOR CONNECTOR
Y MOTOR CONNECTOR
CONTROL BLOCK



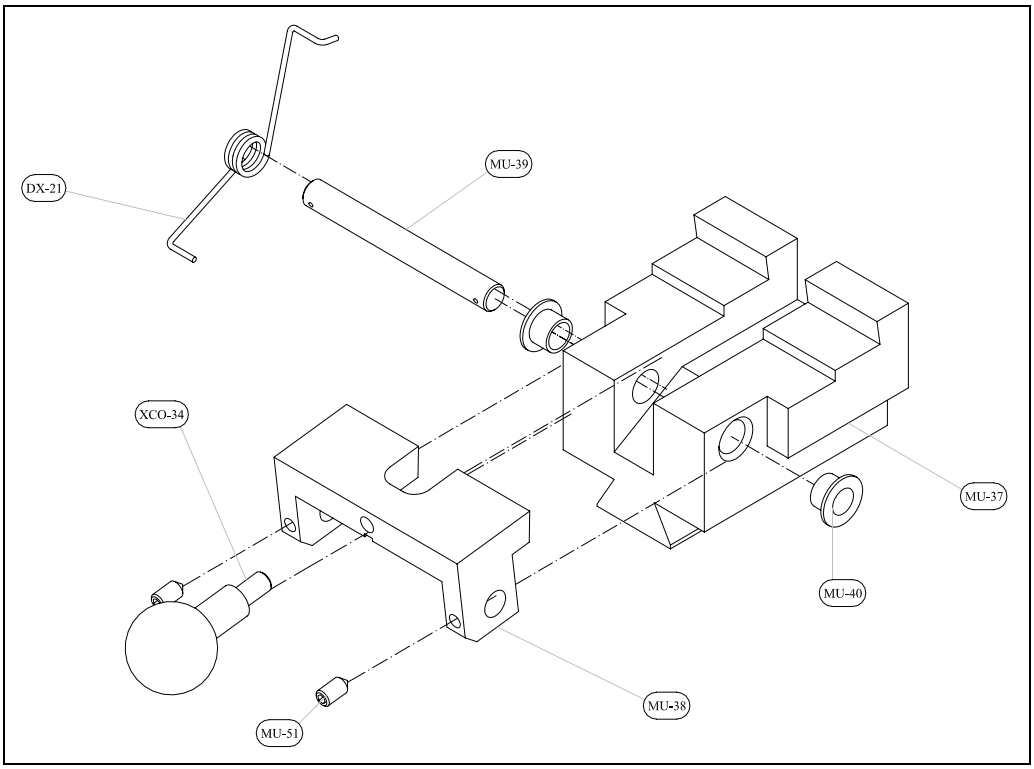
Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

9. EXPLODED VIEW

9.1. MJ1K KEY JAW

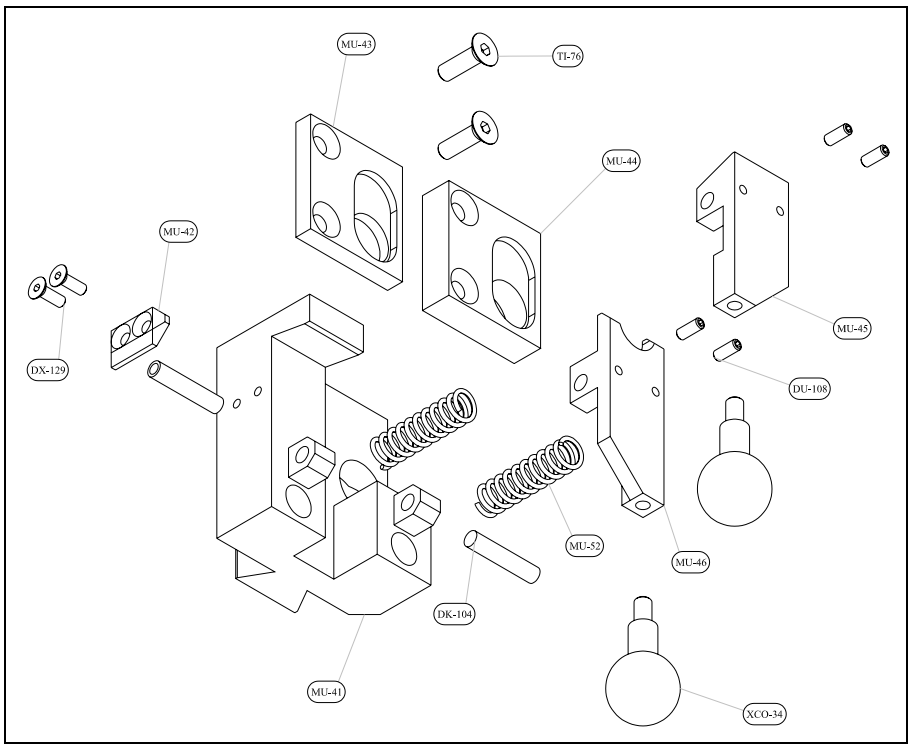


9.2. MJ1C LOCK JAW

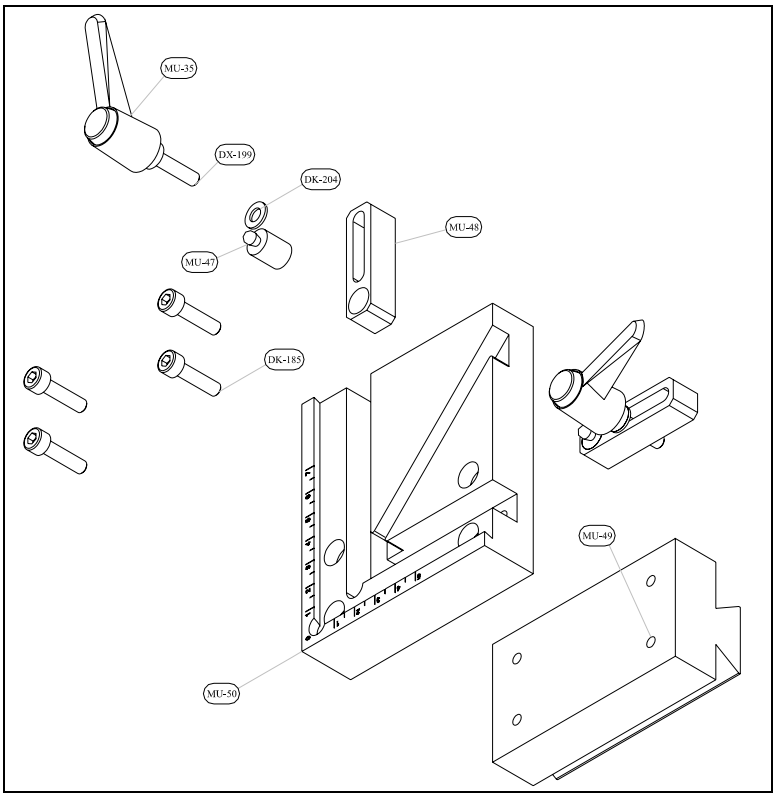


Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

9.3. MJ2C ESCANDINAVIAN LOCK JAW



9.4. MJ1P PLATE JAW



Tel. +34 943 79 30 00
Fax +34 943 79 72 43
www.jma.es
Bidekurtzeta, 6. P.O.Box 70
20500 Arrasate - Mondragón
Gipuzkoa - Spain
jma@jma.es

9.5. MULTIMARK MACHINE