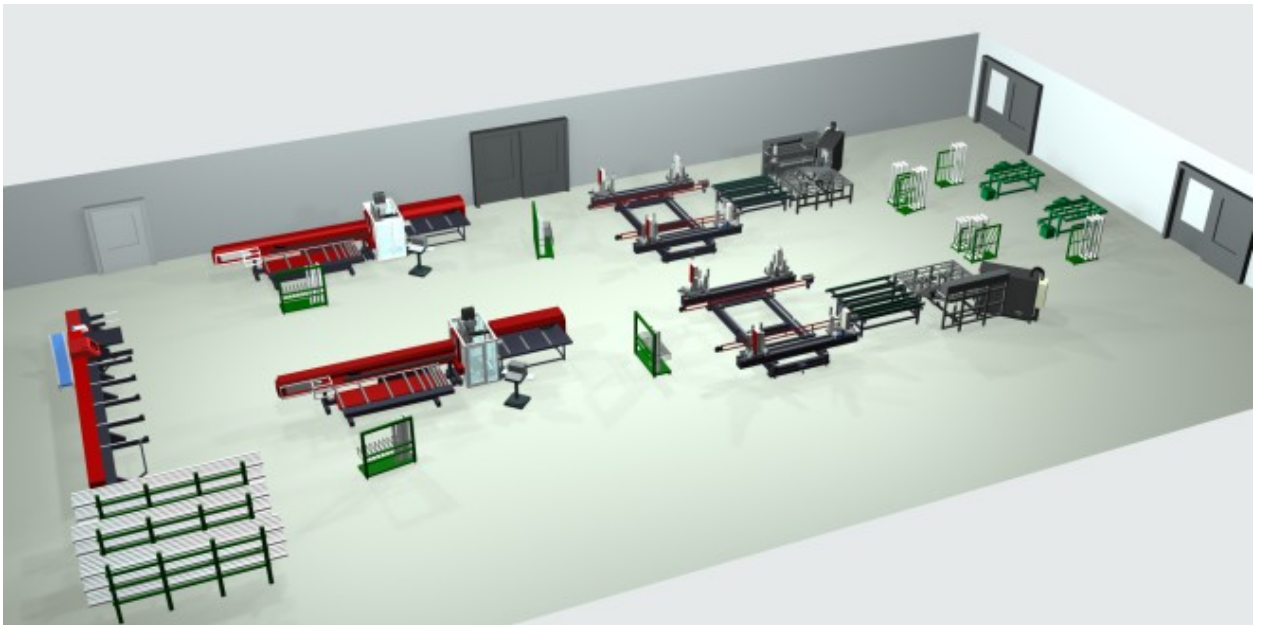"CLF" COMMUNICATION PROTOCOL
FOR
LinearCat500Fab, LinearCat600Fab
Cat500Fab, Cat600Fab
FabCut500, FabCut600, FabCut-F1, FabCut-F2
FabCut-V, FabCutNotch, FabCut-3B, FabCut-3B-Al
FabCut-F1-EMH8, FabCut-V-EMH8, ASG, RMA, EMV
CNC PLASMA

SPECIFICATIONS

CONTENTS

1. CLF Protocol

All details about the cutting and machining list are in a file with the following features:
- File extension is "**.CLF**".
- File format is ASCII text, where the various machine programming blocks can be identified.
- Every programming block consists of:
  o A configuration section, identified by the keyword "**CONFIG**".
  o A matching with the print file section, formed by one or more lines, identified by the keyword "**LABID**" (optional).
  o A general information section, identified by the keyword "**INFO**" (optional).
  o A window information section, identified by the keyword "**WinInfo**" (optional).
  o A cutting section, identified by the keywords "**CutAngleLeft**", "**CutAngleRight**", "**CutOffsetLeft**" (optional), "**CutOffsetRight**" (optional).
  o A section for cutting the reinforcement, identified by the keyword "**Reinforcement**" (optional).
  o A section for generic messages showed on the second row of the display, as identified by the keyword "**DISP2**" (optional).
  o A section, formed by one or more lines, for machining jobs setup, identified by the keyword "**Fab**".
  o A section, formed by two lines, for end milling on the mullion setup, identified by the keywords "**EndMilH**", for the milling on head, and "**EndMilT**", for the milling on tail (optional).
  o A section, formed by one or more lines, for lock screwing setup, identified by the keyword "**Lock**".
- Every section ends with a semicolon "**;**" + "Carriage-return" ("**;**" = ASCII 59+ "**CR**"= ASCII 13).
- The fields within each section are separated by a semicolon "**;**" ("**;**"=ASCII59).
- The keywords are not case-sensitive.

A typical block is as follows:
```
Config;00010000001;1505;13050;1;0001;N;60000;RE001;OpN;1;
Info;Box1 Pos C04;Box2.Pos.F03;Box3.Pos.H02;FRAME DOWN;1700/2008;Graf Synergy;
LabId;001;
WinInfo;1;13000;10000;WH;WH;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;1;1;1350;450;
Disp2;AC3;1;
Fab;WATER_SLOT_EXT;825;450;250;50;
Fab;WATER_SLOT_INT;12525;
Fab;FIX_WALL;12025;
Lock;SECURITY_KEEP;8025;
```

The following strings could indicate a generic block:

```
CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←
INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←
LabId;LabelNumber;←
WinInfo;Pos;Height;Width;InColor;OutColor;Glasket;←
CutAngleLeft;CutAngleLeft1;CutAngleLeft2;←
CutAngleRight;CutAngleRight1;CutAngleRight2;←
CutOffsetLeft;CutOffsetLeftQuantity;←
CutOffsetRight;CutOffsetRightQuantity;←
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/NotSendToPlas
ma;FixLenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
Disp2;GenericMessage;MachineNumber;←
Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←
EndMilH;MilName;MilPos;←
EndMilT;MilName;MilPos;←
Lock;LockName;LockPos;←
```

1.1. Description of the configuration section

The configuration section indicates the base data necessary for carrying out cut and/or machining. This section is identified by keyword "**CONFIG**". The generic string for this section is as follows:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`

Below is the meaning of all fields.

1) **Identification of the configuration section**
`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`
- **Description**:Use keyword "**CONFIG**". This indicates the beginning of a configuration section.
- **Type of string**:   Alphabetic
  o **Allowed strings**: "**CONFIG**"
  Any different value will generate errors.
2) **ID code for the programming section** (optional):
`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`
- **Description**:Code identifying the programming block. This field is the barcode printed on a label. This barcode begins with n characters that correspond to filename in Work List (the number of characters can be set).
  Figure 1 is a sample label with barcode.

```
PROFILE CODE=ABCD1234
COLOR        =WH
QUANTITY     =12
CUSTOMER     =BIG1
ORDER        =1234BIG
WINDOW       =KITCHEN

         ||||||||||||||||||||||||||
         BARCODE 0011
```

FIGURE 1

The barcode shown is "**BARCODE0011**". The machine can be set so that the first 7 characters, i.e. "**BARCODE**", correspond to the filename of the work list. In this case the machine will open the file called "**BARCODE.CLF**":
- **Type of string**: Alphanumeric
3) **Profile code:**
`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`
- **Description**: Section ID code.
- **Type of string**: Alphanumeric
4) **Section length**:
`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`
- **Description**:   Represents section length (see Figure 2). The values are in tenths of a millimetre (1/10mm). For example 1230.5mm = "**12305**".
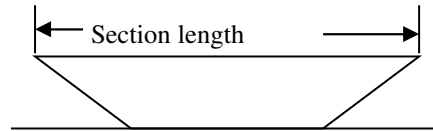- **Type of string**: Numerical

Figure 2

5) **Quantity**:

`CONFIG;BarCodeId;ProfileCode;Length;`Quantity`;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`

- **Description**: Quantity of parts to be cut and/or machine. Always enter "**1**".
- **Type of string**: Numerical
  o **Allowed strings**:
  ➢ "**1**" always enter 1.
  Any different value will generate errors.

6) **Colour code**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;`ColourCode`;LoadBar;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`

- **Description**: Colour ID code.
- **Type of string**: Alphanumeric

7) **Load bar**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;`LoadBar`;LengthLoadBar;ResLabel;OpN;SentNextMachine;←`

- **Description**: Indicates that a bar shall be loaded.
- **Type of string**: Alphabetic
  o **Allowed strings**:
  ➢ **"N"**: Indicates that a bar shall be loaded.
  ➢ " " indicates that a cut and/or intermediate machining is necessary.
  Any different value will generate errors.

8) **Length load bar**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;`LengthLoadBar`;ResLabel;OpN;SentNextMachine;←`

- **Description**:
  o Indicates the length of bar to be loaded. It can be a new bar or a remainder crop end.
  o The value is in tenths of a millimetre (1/10mm). For instance, enter "**60000**" if new bar is 6m long. Or, in case of a crop end 4.5m long, enter "**45000**".
  o This field shall be filled out only if a bar is being loaded, i.e. when "**Load bar**" field (point 7) is set to "**N**", or it shall be left empty.
- **Type of string**: Numerical

9) **Identification for rest bar label (optional)**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;`ResLabel`;OpN;SentNextMachine;←`

- **Description**:
  o Enter from RE000 to RE999, to indicate which label to print for rest of the bar.
  o Enter this identifier only in the last piece of the bar.
  o If this identifier is empty, the label to the rest bar will be printed with the management by machine.
- **Type of string**: Alphanumeric

10) **Identification of operator (optional)**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;`OpN`;SentNextMachine;←`

- **Description**:
  o To indicate the operator.
- **Type of string**: Alphanumeric.

11) **Identification if send the piece to downstream machine (optional)**:

`CONFIG;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;ResLabel;OpN;`SentNextMachine`;←`

- **Description**:
  o Indicates whether to send the piece to the downstream machine or unload on Graf Synergy machines.
  ➢ 1: send the piece to the downstream machine.
  ➢ 0: unload the piece on the Graf Synergy machine.

      o **Type of string**: Numeric.

1.2. Description of the general information section

General information section is **optional** and contains useful details for the operator. This section is identified by keyword "**INFO**". The generic string for this section is as follows:

`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`

Below is the meaning of all fields.

1) **Identification of the general information section:**
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: Use keyword "**INFO**". This indicates the beginning of a general information section.
- **Type of string**: Alphabetic
  - **Allowed strings**: "**INFO**"
  Any different value will generate errors.

2) **Load bar box:**
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: Indicates the box from which the bar to be loaded shall be picked up. It could be a new bar or a crop end.
- **Type of string**: Alphanumeric

3) **Download piece box:**
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: Indicates the box where cut and/or machined piece shall be unloaded
- **Type of string**: Alphanumeric

4) **Download off cut box:**
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: Indicates the box where bar crop end shall be put.
- **Type of string**: Alphanumeric

5) **Window type**:
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: A description to identify the type of window. Used for information only.
- **Type of string**: Alphanumeric

6) **Order reference**:
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: A description to identify the order number.
- **Type of string**: Alphanumeric

7) **Customer code**:
`INFO;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←`
- **Description**: A description to identify the customer.
- **Type of string**: Alphanumeric

1.3. Description of the matching section with the "LA1" print file

In this section (**optional**) is showed the matching with the file for the printing labels of type "LA1". The file "LA1" is divided into blocks that begin "LabId", followed by a progressive 3-digit code, and then to print a label will be search the label with the same code. If this section is absent, the matching use the follows rules:

➢ The first cutting line is associated to the printing block with the code "001"
➢ The second cutting line is associated to the printing block with the code "002"
➢ The third cutting line is associated to the printing block with the code "003"
➢ ....
➢ The 999 cutting line is associated to the printing block with the code "999".

This section is identified by the keyword "**LabId**".

This section may be repeated several times to print multiple labels on the same bar, or for printing the rest bar label.

NOTE:

The printing of bar rest is handled in the following ways:

a) Automatic printing by the supervision software of the machine. The rest bar label is configurable to your liking. This solution is preferable because in this way, you can use the following tools made available by the supervisory software of the machine:
 ➢ Optimization of cutting and work list.
 ➢ Function called Fly Ottimazer that allows you to measure the rest bar and optimize the cutting an work list.

b) Use the field " ResLabel " of configuration section but using this solution:
 ➢ You have to add in the file "LA1" associated, the blocks "RExxx" for printing the rest bar labels.
 ➢ You lose the possibility to use the optimization of cutting and work list, provided by the machine supervisory software.
 ➢ You lose the possibility to use the function called Fly Ottimazer, which allows to measure the rest bar and optimize the list, provided by the machine supervisory software.

c) Repeat several times this section "**LabId**", one of these for the print rest bar, but using this solution:
 ➢ You have to add in the file "LA1" associated, one more block "**LabId**" for printing the rest bar labels.
 ➢ You lose the possibility to use the optimization of cutting and work list, provided by the machine supervisory software.
 ➢ You lose the possibility to use the function called Fly Ottimazer, which allows to measure the rest bar and optimize the list, provided by the machine supervisory software.

Between these three solutions it is preferable to the first.

The generic string, for this section, is as follows:

```
LabId;LabelNumber;←
```

Below is the meaning of all fields.

1) **Identification of the matching section with the print file**:
```
LabId;LabelNumber;←
```
 • **Description**: Use keyword "**LabId**". This indicates the beginning of this section.
 • **String type**: Alphabetic

o **Acceptable strings**: "`LabId`"

Others values generation errors.

2) Label code to print:

`LabId;`<mark>`LabelNumber`</mark>`;←`

- **Description**: 3-digit code that uniquely identifies the label to be printed, taking it form relative block inside the file LA1.
- **String type:** Numeric
  o **Acceptable strings: "001", "002",....., "999"**.

Others values generation errors.

1.4.   Description of the window information section

Window information section (**optional**) contains details of window. This section is identified by keyword "**WinInfo**". The generic string for this section is as follows:

`WinInfo;Pos;Height;Width;InColor;OutColor;Glasket;←`

Below is the meaning of all fields.

3) **Identification of the window information section:**

<mark>`WinInfo`</mark>`;Pos;Height;Width;InColor;OutColor;Glasket;←`

- **Description**:Use keyword "`WinInfo`". This indicates the beginning of this section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "`WinInfo`"

Any different value will generate errors.

4) **Profile position**:

`WinInfo;`<mark>`Pos`</mark>`;Height;Width;InColor;OutColor;Glasket;←`

- **Describe**: Profile position in the "square". If the inside view of the window is up on machine, the profile position are:
  - ➢ "**1**" for bottom profile.
  - ➢ "**2**" for right profile.
  - ➢ "**3**" for up profile.
  - ➢ "**4**" for left profile.
- **String type:** Numerical
  o **Acceptable strings:** "**1**", "**2**", "**3**", "**4**".

Others values generation errors.

5) **Window height:**

`WinInfo;Pos;`<mark>`Height`</mark>`;Width;InColor;OutColor;Glasket;←`

- **Describe**: Insert window height. Value in 1/10mm.
- **String type:** Numerical

6) **Window width**:

`WinInfo;Pos;Height;`<mark>`Width`</mark>`;InColor;OutColor;Glasket;←`

- **Describe**: Insert window width. Value in 1/10mm.
- **String type:** Numerical

7) **Inside profile colour:**

`WinInfo;Pos;Height;Width;`<mark>`InColor`</mark>`;OutColor;Glasket;←`

- **Describe**: Write "**WH**" if inside profile colour is white, whichever string if inside window is coloured.
- **String type:** Alphanumerical

8) **Outside profile colour**:

`WinInfo;Pos;Height;Width;InColor;`<mark>`OutColor`</mark>`;Glasket;←`

- **Describe**: Write "**WH**" if outside profile colour is white, whichever string if outside window is coloured.
- **String type:** Alphanumerical

9) **Gasket inside**:

`WinInfo;Pos;Height;Width;InColor;OutColor;`<mark>`Glasket`</mark>`;←`

- **Describe**: If gasket in inside. Insert "**G**", if gasket is inside, or "" or " " if gasket isn't inside.
- **String type:** Alphanumerical
  o **Acceptable strings:**
    ➢ "**G**" if gasket is inside.
    ➢ "" or " "if gasket isn't inside.

1.5. Description of the cutting section

The cutting section is divided into four subsections, identified by the keywords:
➢ "**CutAngleLeft**", corresponding to left cutting angle.
➢ "**CutAngleRight**", corresponding to right cutting angle.
➢ "**CutOffsetLeft**", corresponding to left cutting offset, (**optional**).
➢ "**CutOffsetRight**", corresponding to right cutting offset, (**optional**).

The generic strings for this section are as follows:

`CutAngleLeft;CutAngleLeft1;CutAngleLeft2;←`
`CutAngleRight;CutAngleRight1;CutAngleRight2;←`
`CutOffsetLeft;CutOffsetLeftQuantity;←`
`CutOffsetRight;CutOffsetRightQuantity;←`

1.5.1. Description of the section for the left cutting angle

Left cutting angle section is identified by the keyword "**CutAngleLeft**". The generic string for this section is as follows:

`CutAngleLeft;CutAngleLeft1;CutAngleLeft2;←`

Below is the meaning of all fields.

1) **Identification of the left cutting angle:**
<mark>`CutAngleLeft`</mark>`;CutAngleLeft1;CutAngleLeft2;←`
- **Description**: Use keyword "**CutAngleLeft**". This indicates the beginning of left cutting angle section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "**CutAngleLeft**"
  Any different value will generate errors.
2) **First left cutting angle:**
`CutAngleLeft;`<mark>`CutAngleLeft1`</mark>`;CutAngleLeft2;←`
- **Description**: Indicates the first left cutting angle (see figure 3). The values are in tenths of a degree (1/10°). For example 135.0° = "**1350**".
- **Type of string**: Numerical
  o **Allowed strings**:
    ➢ "**1350**" for cutting at 135.0°.

➢ "**900**" for cutting at 90.0°.
➢ "**100**"…"**1700**" (10.0°…170.0°) for intermediate cuts. These values are the ones allowed for the protocol. The ones actually allowed depend on the type of machine. Please refer to the machine technical data.

3) **Second left cutting angle** (option in case of single cut):
`CutAngleLeft;`CutAngleLeft1;`CutAngleLeft2;←`
  • **Description**: Indicates the second left cutting angle (see figure 3). The values are in tenths of a degree (1/10°). For example 45.0° = "**450**".
  • **Type of string**: Numerical
    o **Allowed strings**:
      ➢ "**450**" for cutting at 45.0°.
      ➢ "**900**" for cutting at 90.0°.
      ➢ "**100**"…"**1700**" (10.0°…170.0°) for intermediate cuts. These values are the ones allowed for the protocol. The ones actually allowed depend on the type of machine. Please refer to the machine technical data.

1.5.2. Description of the section for the right cutting angle

Right cutting angle section is identified by the keyword "**CutAngleRight**". The generic string for this section is as follows:

`CutAngleRight;`CutAngleRight1;CutAngleRight2;←`

Below is the meaning of all fields.

1) **Identification of the right cutting angle:**
`CutAngleRight;`CutAngleRight1;CutAngleRight2;←`
  • **Description**: Use keyword "**CutAngleRight**". This indicates the beginning of right cutting angle section.
  • **Type of string**: Alphabetic
    o **Allowed strings**: "**CutAngleRight**"
    Any different value will generate errors.

2) **First right cutting angle:**
`CutAngleRight;`CutAngleRight1;`CutAngleRight2;←`
  • **Description**: Indicates the first right cutting angle (see figure 3). The values are in tenths of a degree (1/10°). For example 45.0° = "**450**".
  • **Type of string**: Numerical
    o **Allowed strings**:
      ➢ "**450**" for cutting at 45.0°.
      ➢ "**900**" for cutting at 90.0°.
      ➢ "**100**"…"**1700**" (10.0°…170.0°) for intermediate cuts. These values are the ones allowed for the protocol. The ones actually allowed depend on the type of machine. Please refer to the machine technical data.

3) **Second right cutting angle** (option in case of single cut):
`CutAngleRight;`CutAngleRight1;`CutAngleRight2;←`
  • **Description**: Indicates the second right cutting angle (see figure 3). The values are in tenths of a degree (1/10°). For example 45.0° = "**450**".
  • **Type of string**: Numerical
    o **Allowed strings**:

> ➢ "**450**" for cutting at 45.0°.
> ➢ "**900**" for cutting at 90.0°.
> ➢ "**100**"..."**1700**" (10.0°...170.0°) for intermediate cuts. These values are the ones allowed for the protocol. The ones actually allowed depend on the type of machine. Please refer to the machine technical data.

1.5.3.   Description of the section for the left cutting offset

Left cutting offset section is identified by the keyword "**CutOffsetLeft**". Option in case of single cut. The generic string for this section is as follows:

`CutOffsetLeft;CutOffsetLeftQuantity;←`

Below is the meaning of all fields.

1) **Identification of the left cutting offset:**
`CutOffsetLeft;CutOffsetLeftQuantity;←`
- **Description**:Use keyword "**CutOffsetLeft**". This indicates the beginning of left cutting offset section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "**CutOffsetLeft**"
  Any different value will generate errors.
2) **Left cutting offset:**
`CutOffsetLeft;CutOffsetLeftQuantity;←`
- **Description**: Indicates the left cutting offset (see figure 3). The values are in tenths of a millimetre (1/10mm). For example 25.0mm = "**250**".
- **Type of string**: Numerical

1.5.4.   Description of the section for the right cutting offset

Right cutting offset section is identified by the keyword "**CutOffsetRight**". Option in case of single cut. The generic string for this section is as follows:

`CutOffsetRight;CutOffsetRightQuantity;←`

Below is the meaning of all fields.

1) **Identification of the right cutting offset:**
`CutOffsetRight;CutOffsetRightQuantity;←`
- **Description**:Use keyword "**CutOffsetRight**". This indicates the beginning of right cutting offset section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "**CutOffsetRight**"
  Any different value will generate errors.
2) **Right cutting offset:**
`CutOffsetRight;CutOffsetRightQuantity;←`
- **Description**: Indicates the right cutting offset (see figure 3). The values are in tenths of a millimetre (1/10mm). For example 25.0mm = "**250**".
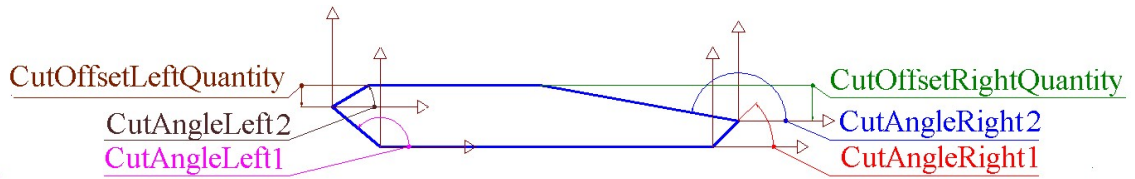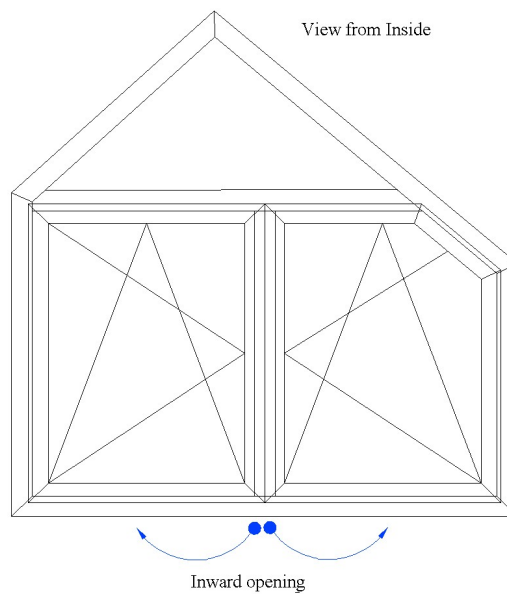
- **Type of string**: Numerical

Figure 3

## 1.5.5.   Standard settings for sections loading

1) The window pictures shown in the software technical data sheets represents a **view from inside**.
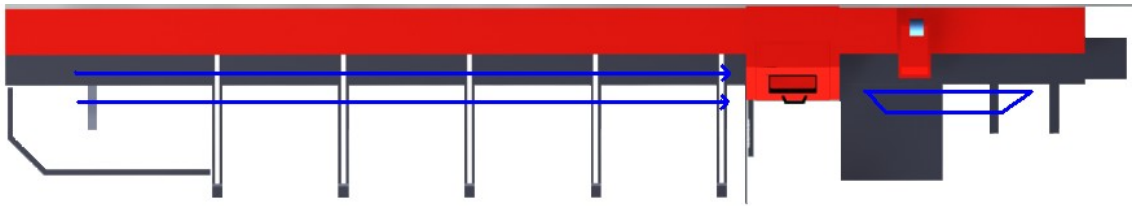2) The window is with **inward opening**.
NOTE: For the English market, instances 1 and 2 are both the opposite (external view, outward opening) so that the principles are unchanged.

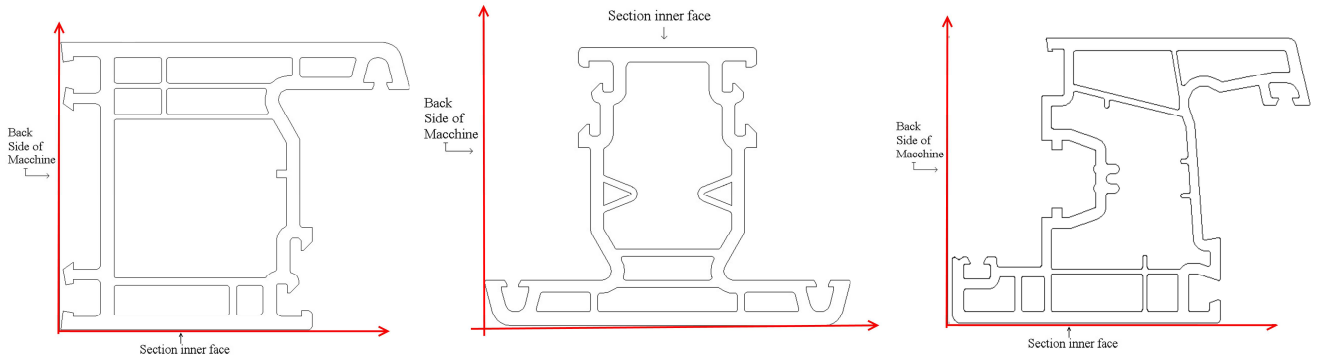3) For single cuts, section longer side faces machine back.
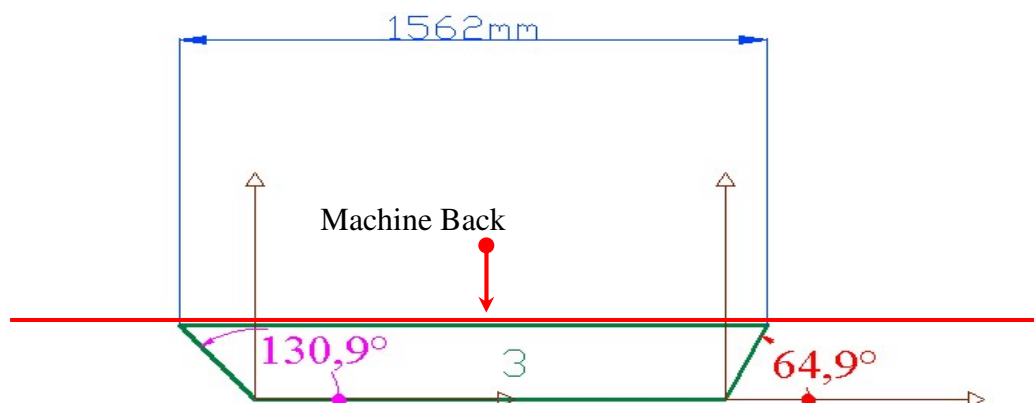
4) **Machine** standard type **is left-hand**.

Left-hand macchine

5) Standard section loading is showed in the followed pictures.

NOTE:
> **The software shall give the necessary information considering the standard instances.**
> **A may profile be loaded in a different way, for stability reasons.**

1.5.6. Examples of the cutting section

Fields **CutAngleLeft1, CutAngleRight1** are always available.
Fields **CutAngleLeft2, CutAngleRight2, CutOffsetLeftQuantity, CutOffsetRightQuantity,** are used only for double cuts.
Following are some examples for these fields.
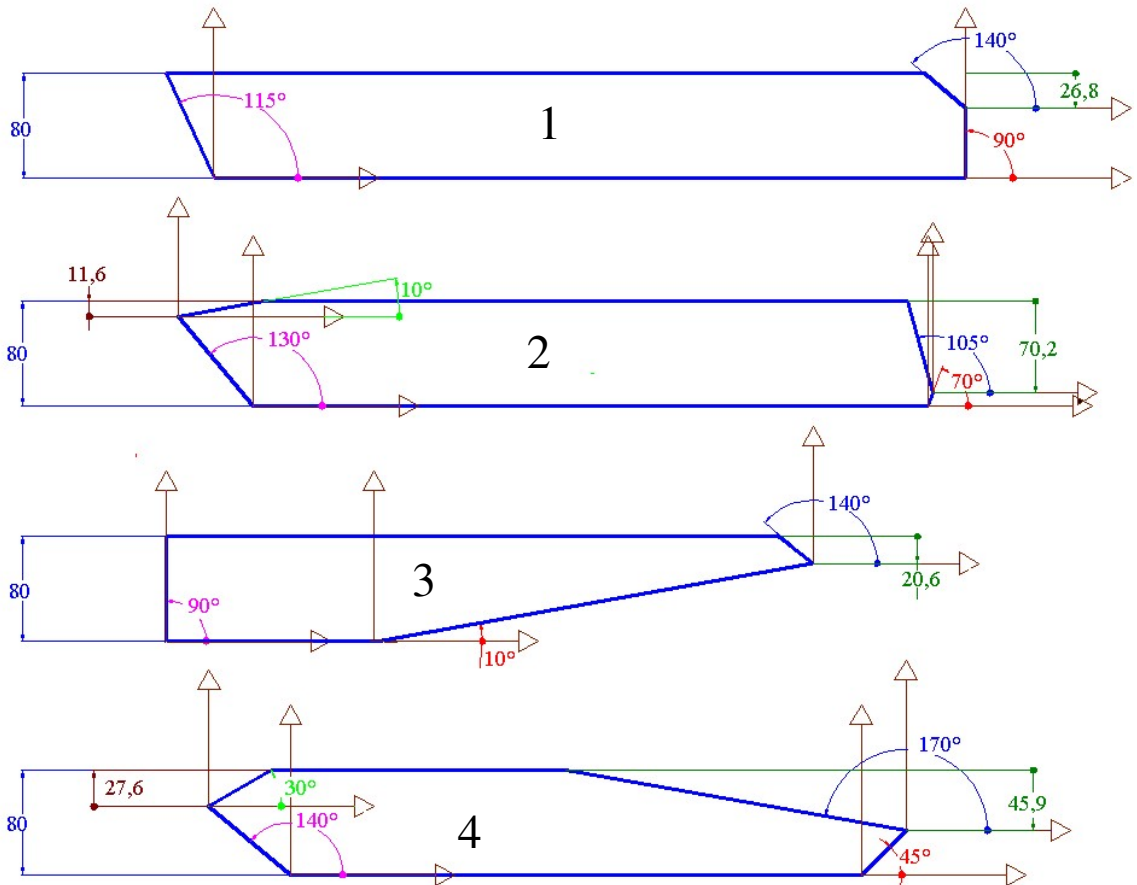
No.	CutAngle Left1	CutAngle Right1	CutAngle Left2	CutAngle Right2	CutOffset LeftQuantity	CutOffset RightQuantity
1	1150	900		1400		268
2	1300	700	100	1050	116	702
3	900	100		1400		206
4	1400	450	300	1700	276	459

1.5.7. Examples of cutting section, for a special window

Following are some examples for fields **CutAngleLeft1, CutAngleRight1, CutAngleLeft2, CutAngleRight2, CutOffsetLeftQuantity, CutOffsetRightQuantity,** for a special window.
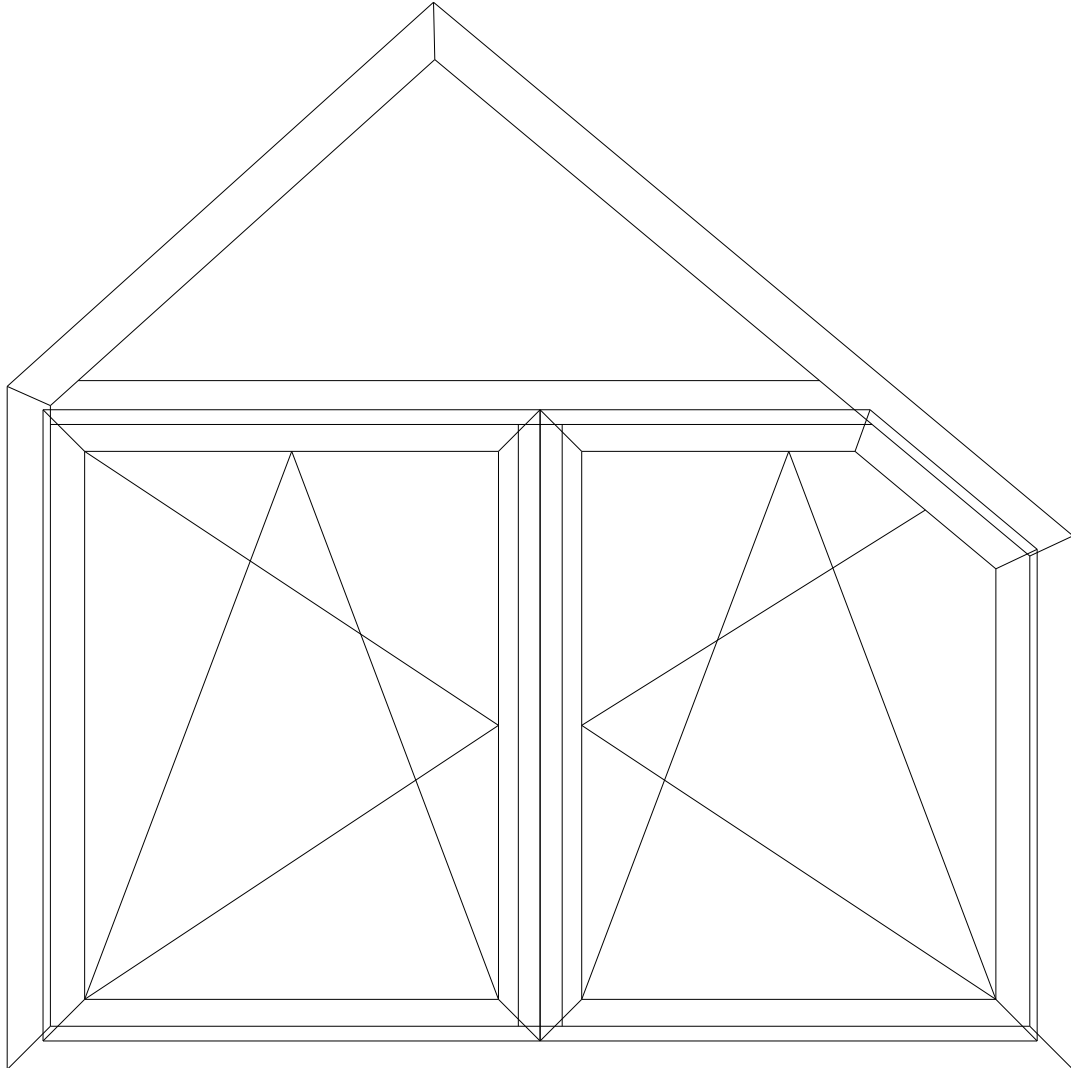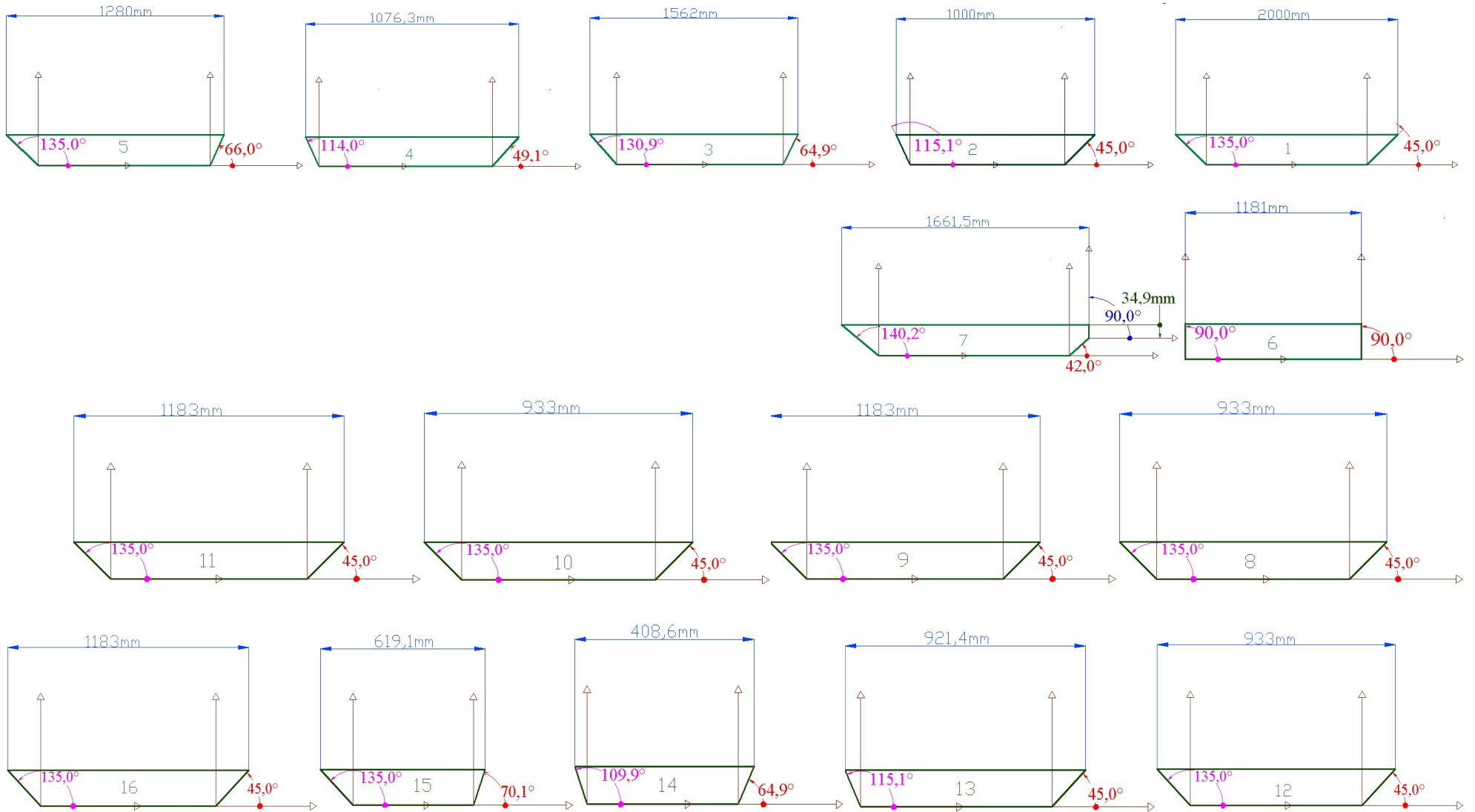
Frame:
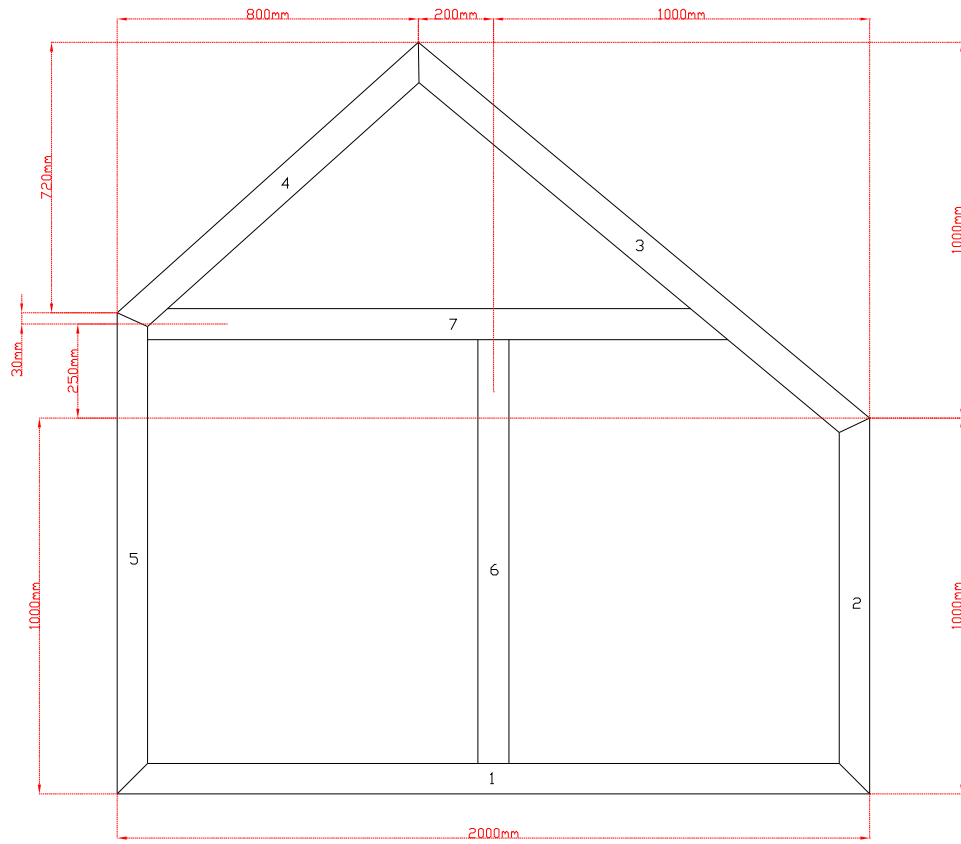
Sash:
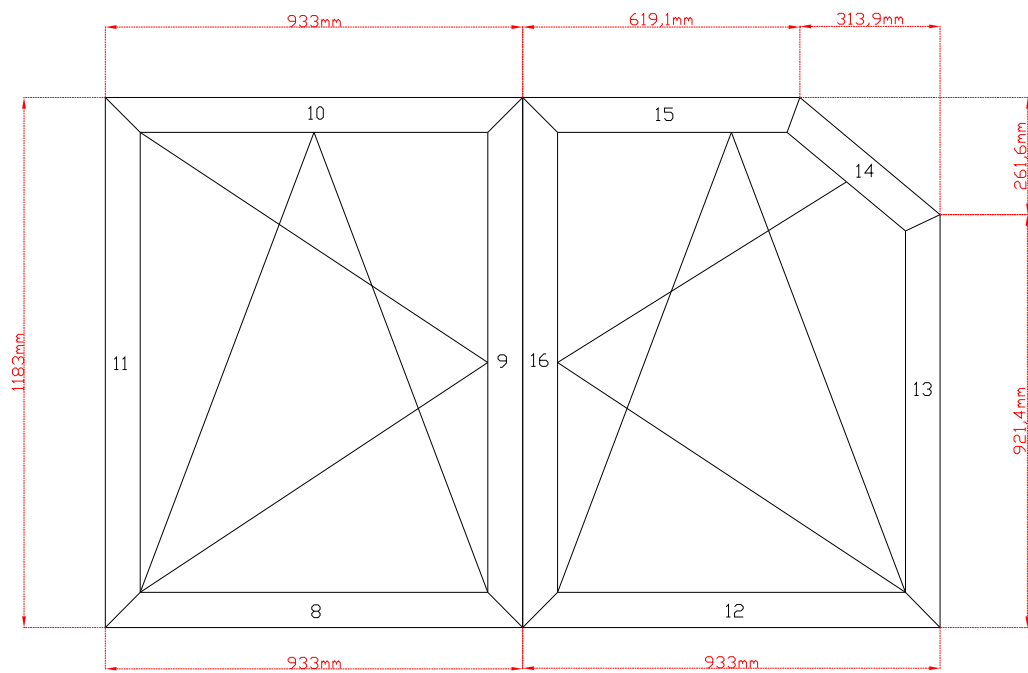
No.	POSITION	LENGTH	CutAngle Left1	CutAngle Right1	CutAngle Left2	CutAngle Right2	CutOffset LeftQuantity	CutOffset RightQuantity
1	Frame Bottom	20000	1350	450				
2	Frame Right	10000	1151	450				
3	Frame Right Up	15620	1309	649				
4	Frame Left Up	10763	1140	491				
5	Frame Left	12800	1350	660				
6	Transom Vertical	11810	900	900				
7	Transom Horizontal	16615	1402	420		900		349
8	Sash 1 Bottom	9330	1350	450				
9	Sash 1 Right	11830	1350	450				
10	Sash 1 Up	9330	1350	450				
11	Sash 1 Left	11830	1350	450				
12	Sash 2 Bottom	9330	1350	450				
13	Sash 2 Right	9214	1151	450				
14	Sash 2 Right Up	4086	1099	649				
15	Sash 2 Left Up	6191	1350	701				
16	Sash 2 Left	11830	1350	450				

1.6. Description of the reinforcement section

The section for cutting the reinforcements is identified by the keyword "**Reinforcement**" (option). The generic string for this section is as follows:

```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/SendToPlasma;
Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```

Below is the meaning of all fields.

1) **Identification of the reinforcement section (Optional for cut Plasma reinforcement):**
```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/SendToPlasma;
Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```
   - **Description**:Use keyword "**Reinforcement**". This indicates the beginning of a reinforcement section.
   - **Type of string**: Alphabetic
     o **Allowed strings**: "**Reinforcement**"
     Any different value will generate errors.
2) **Reinforcement code(Optional for cut Plasma reinforcement):**
```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/SendToPlasma;
Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```
   - **Description**   : Reinforcement ID code.
   - **Type of string**: Alphanumeric
3) **Reinforcement length (Optional for cut Plasma reinforcement)**:
```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/SendToPlasma;
Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```
   - **Description**:   Represents reinforcement cut length. The values are in tenths of a millimetre (1/10mm). For example 1230.5mm = "**12305**".
   - **Type of string**: Numerical
4) **Number of downstream machines (Optional for cut Plasma reinforcement)**:
```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/SendToPlasma;
Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```
   - **Description**:   This is the number of downstream machine to switch to the piece for the next machining. Indicate which machine, downstream of the main machine, switch the pieces to perform the next machining. The values are **1,2**, ...
     Or if the information has to be passed to the iron cutting machine. To be used if you want to use pre-cut iron.
     If put "**0**", the information is passed to the iron cutting machine to cut the reinforcement.
     If put "**1**", the information is not passed to the iron cutting machine and therefore the reinforcement will not be cut and the pre-cut reinforcements will have to be used.
   - **Type of string**: Numerical
5) **Lenght cut fix (Optional for cut Plasma reinforcement)**:
```
Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/NotSendToPlas
ma;Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←
```
   - **Description**: If is possible cut the reinforcement less of value in the field "ReinforcementLenght". If value is 1, the length of reinforcement must to be fix. If value is 0, the length of reinforcement can to be less, for have better optimization of reinforcement bar.

- **Type of string**: Numerical
  - o **Allowed strings**: 0, 1
    Any different value will generate errors.

6) **Identification of the left cutting angle of reinforcement (Optional for cut Plasma reinforcement)**:
`Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/NotSendToPlasma;Fixlenght;`CutAngleLeftReinforcement`;CutAngleRightReinforcemen;←`
   - **Description**: Indicates the left cutting angle of reinforcement. The values are in tenths of a degree (1/10°). For example 135.0° = "**1350**".
   - **Type of string**: Numerical
     - o **Allowed strings**:
       - ➢ "**1350**" for cutting at 135.0°.
       - ➢ "**900**" or "" for cutting at 90.0°.

7) **Identification of the right cutting angle of reinforcement (Optional for cut Plasma reinforcement)**:
`Reinforcement;ReinforcementCode;ReinforcementLenght;MachineNumber/NotSendToPlasma;Fixlenght;CutAngleLeftReinforcement;`CutAngleRightReinforcemen`;←`
   - **Description**: Indicates the right cutting angle of reinforcement. The values are in tenths of a degree (1/10°). For example 45.0° = "**450**".
   - **Type of string**: Numerical
     - o **Allowed strings**:
       - ➢ "**450**" for cutting at 45.0°.
       - ➢ "**900**" or "" for cutting at 90.0°.

1.7. Description of message section of second row of display

This section handles messages that can be showed on second row of display on belt unloading table. The displays are composed of 4 cells, so are showed up to 4 characters. The section is identified by the keyword "**Disp2**" (**optional**) . The generic string of this section is the following:

`Disp2;GenericMessage;MachineNumber;←`

Below is the meaning of all fields.

1) **Identification of section of second row of display**:
`Disp2;GenericMessage;MachineNumber;←`
   - **Description**: Use keyword "**Disp2**". This indicates the beginning of section of second row of display on belt unloading table.
   - **String type**: Alphabetical
   - o **Allowed strings**: "**Disp2**"
       Other values generate errors.
2) **Message to be showed**:
`Disp2;`GenericMessage`;MachineNumber;←`
   - **Description**: Generic message to be showed.
   - **String type**: Alphanumeric
     - o **Allowed strings**: Being a 7-segment display, showed characters are **0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, b, C, c, d, E, F, H, J, L ,O, o, P, r, t, U, u, (space), -.**
       Other values generate errors.
       The representation of the previous character is shown in the following table:

Display	Carattere	Codice ASCII	Display	Carattere	Codice ASCII

	0	48			E	69
	1	49			F	70
	2	50			H	72
	3	51			J	74
	4	52			L	76
	5	53			O	79
	6	54			o	111
	7	55			P	80
	8	56			r	114
	9	57			t	116
	A	65			U	85
	b	98			u	117
	C	67			Spazio Space	32
	c	99			-	45
	d	100				

3) **Number of downstream machine (optional)**:

`Disp2;`GenericMessage;`MachineNumber;`←

- **Description**: This is the number of downstream machine to switch to the piece for the next machining. Indicate which machine, downstream of the main machine, switch the pieces to perform the next machining. The values are **1**,**2**, ...
- **Type of string**: Numerical

1.8. Description of the machining jobs section

The machining job section is identified by the keyword "**Fab**". This section is repeated as many times as the machining jobs to be performed. This section could also be not present, if no machining is required. The generic string for this section is as follows:

`Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←`

Below is the meaning of all fields.

1) **Identification of the machining job section:**
`Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←`
- **Description**:Use keyword "`Fab`". This indicates the beginning of a machining job section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "`Fab`"
  Any different value will generate errors.
2) **Machining name**:
`Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←`
- **Description**: Generic name to be associated to machining job.
- **Type of string:** Alphanumeric
3) **Parameter number 1 (X axes) of machining position**:
`Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←`
- **Description**:
  o Indicates the position in direction X where machining is required, see picture.
  o The value is in tenths of a millimetre (1/10mm).
  o Example 1230.5mm = "**12305**".
  o Please refer to the paragraph below for guidelines on how to indicate machining jobs.
- **Type of string:** Numerical
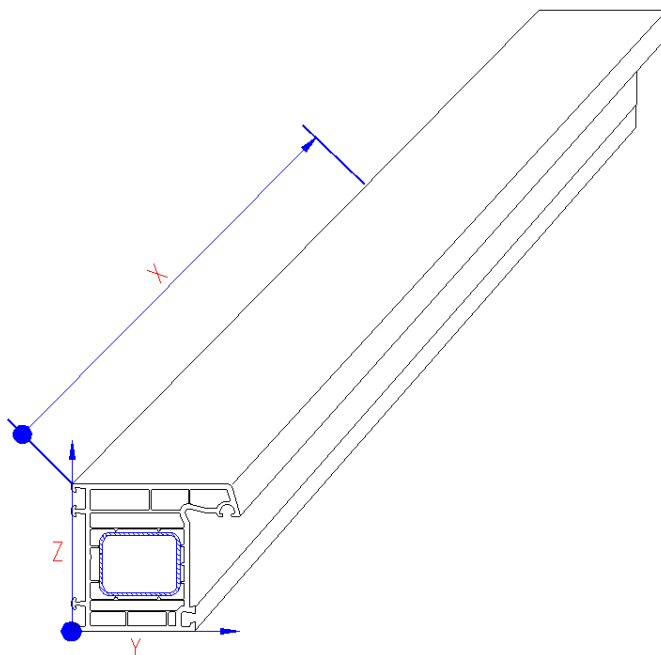
4) **Parameter number 2 (Y or Z axes) of machining position (optional)**:
Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←
- **Description**:
  - o Indicates the position in direction Y or Z (in function of the face where do the machining) where machining is required, see picture.
  - o The value is in tenths of a millimetre (1/10mm).
  - o Example 30.5mm = "**305**".
  - o Optional field. If no present we'll use the default value inserted in the program of machining.
  - o This field will only take effect if the machining is made of a single process.
- **Type of string:** Numerical

5) **Parameter number 3, slot width, hole diameter or greater diameter of key cylinder (parameter DX) (optional)**:
Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←
- **Description**:
  - o Indicates, as shown in the picture:
    - ➢ the length in the case of machining slot
    - ➢ the diameter in the case of machining hole
    - ➢ the greater diameter in the case of the processing of the key cylinder
  - o The value is in tenths of a millimetre (1/10mm).
  - o Example 30.5mm = "**305**".
  - o Optional field. If no present we'll use the default value inserted in the program of machining.
  - o This field will only take effect if the machining is made of a single process.
- **Type of string:** Numerical
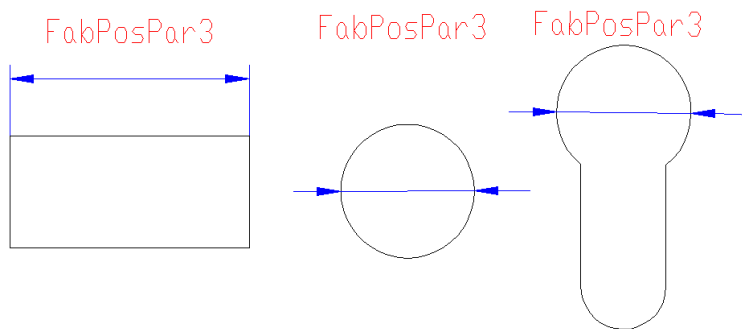
6) **Parameter number 4, slot length, hole diameter or length of key cylinder (parameter DY\DZ) (optional)**:
Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←
- **Description**:
  - o Indicates, as shown in the picture:
    - ➢ the width in the case of machining slot
    - ➢ the diameter in the case of machining hole
    - ➢ the length in the case of the processing of the key cylinder
  - o The value is in tenths of a millimetre (1/10mm).
  - o Example 30.5mm = "**305**".
  - o Optional field. If no present we'll use the default value inserted in the program of machining.
  - o This field will only take effect if the machining is made of a single process.
- **Type of string:** Numerical
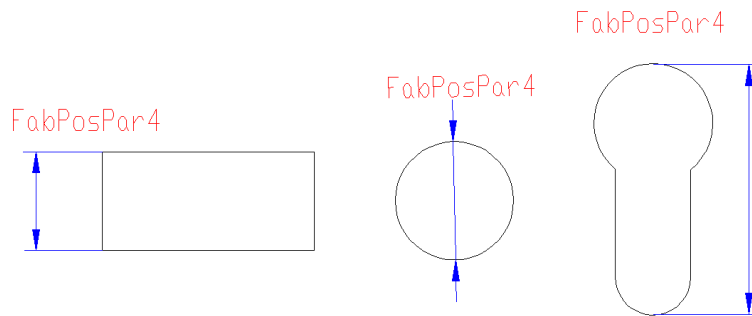
7) **Parameter number 5, width of key cylinder (parameter LdPic) (optional)**:
Fab;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←

- **Description**:
  o Indicates, as shown in the picture:
    ➢ the width in the case of the processing of the key cylinder
  o The value is in tenths of a millimetre (1/10mm).
  o Example 30.5mm = "**305**".
  o Optional field. If no present we'll use the default value inserted in the program of machining.
  o This field will only take effect if the machining is made of a single process.
- **Type of string:** Numerical
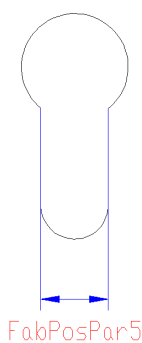
1.8.1.   Guidelines on how to indicate machining jobs

Machining job programming block is identified by keyword "**Fab**", followed by the machining name and position (in 1/10mm).

Machining job programmes, called "**macros**", can contain one or more machining jobs (slots, drills, notches, etc.). For example, the "Cremonese" macro can contain three drills and a slot. While "drain" macro contains only one slot, and the management software will recall the same macro many times, changing the position.

A notch is considered as a machining job. You could program various machining jobs, under different names, depending on the size of notch to be realised.

Using the management programme, it is possible to use up to 50 different macros on one single bar.

The management programme shall know:

- Macro name.
- The machining jobs the macro consists of.
- Macro reference axis.
- Whether the macro is symmetric or asymmetric. In the latter case, two macros shall be set: one for the left machining and one for the right machining.

NOTE: The management program send only these dates:
1) Macro's name.
2) X position of macro (profile direction).
3) Z and Y work position. Optional and only for single machining.
4) Work dimension. Optional and only for single machining.
Other information are inside the macro programmed in supervisor of machine.
Then, the management program **DON'T** send these information:
1) Tool name
2) Tool position
3) Work and rotation tool speed.
4) Tool inclination angle.

Referring to the standard instances described in paragraph 1.5.5, i.e.:

➢ The window pictures shown in the software technical data sheets represents a **view from inside**.
➢ The window is with **inward opening**.
➢ For single cuts, section longer side faces machine back.
➢ **Machine** standard type **is left-hand**.
➢ Standard section loading is carried out with **inner face downward**.

Summarising the rules of quotes reference (see figure 12, origin of the blue arrows), need:

• Start from the bottom piece, number "**1**".
• From left side.
• Continue in counter clockwise.
• Associate the reference to the mullions/transoms that you meet while you are running this round.

Then, the rules of quotes reference are as follows:

• On the left for the bottom section.
• On the bottom for the right section.
• On the right for the top section.
• On the top for the left section.
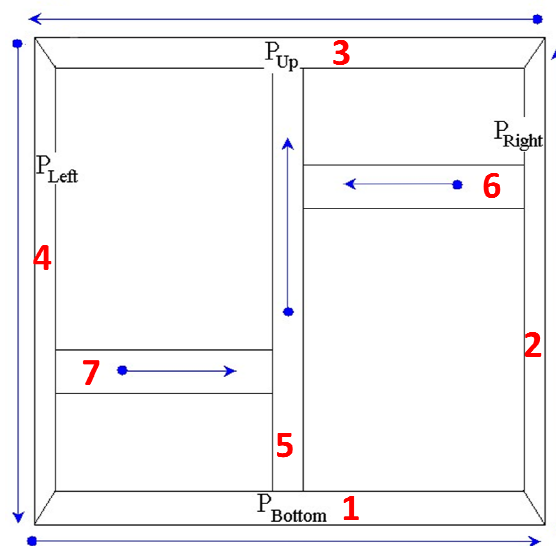
Figure 12

1.9.   Description of the mullion end milling section (optional)

The mullion end milling section is identified by the keyword "**EndMilH**" and "**EndMilT**". This section could also be not present, if mullion end milling is not required. The generic string for this section is as follows:

`**EndMilH**;MilName;MilPos;←`
`**EndMilT**;MilName;MilPos;←`

Below is the meaning of all fields.

1)   **Identification of the mullion end milling on head section:**
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**:Use keyword "`EndMilH`". This indicates the beginning of a mullion end milling on head section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "`EndMilH`"
  Any different value will generate errors.

2)   **Mill name to use for end milling on the head**:
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**: Generic name to be associated to mill for end milling on head.
- **Type of string:** Alphanumeric

3)   **End milling position**:
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**:
  o Indicates the position in direction X where end milling is required.
  o The value is in tenths of a millimetre (1/10mm).
  o Example 1230.5mm = "**12305**".
- **Type of string:** Numerical

4)   **Identification of the mullion end milling on tail section:**
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**:Use keyword "`EndMilT`". This indicates the beginning of a mullion end milling on tail section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "`EndMilT`"
  Any different value will generate errors.

5)   **Mill name to use for end milling on the tail**:
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**: Generic name to be associated to mill for end milling on tail.
- **Type of string:** Alphanumeric

6)   **End milling position**:
`EndMilH;MilName;MilPos;←`
`EndMilT;MilName;MilPos;←`

- **Description**:
  o Indicates the position in direction X where end milling is required.
  o The value is in tenths of a millimetre (1/10mm).
  o Example 1230.5mm = "**12305**".
- **Type of string:** Numerical

1.9.1. Endmilling rules

With reference to the following figure, the head of the endmilling, indicated by "H", is the beginning of the blue arrow.
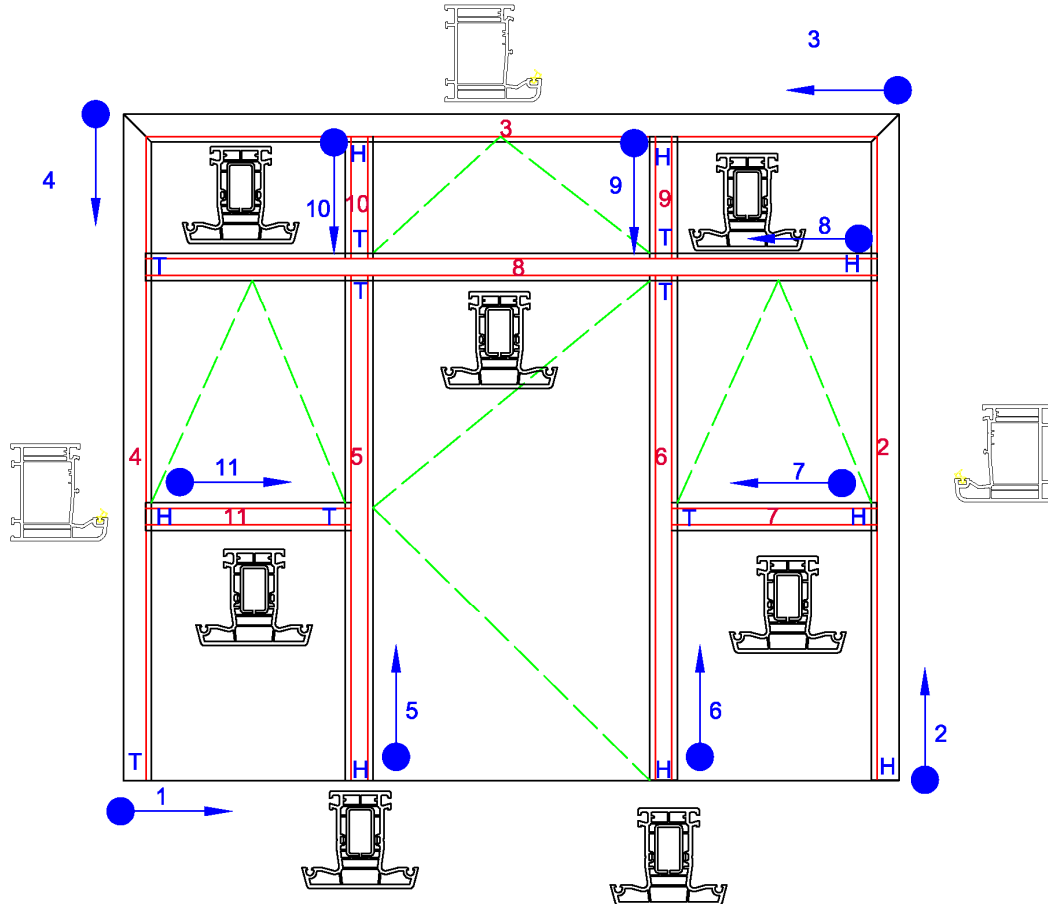
Summarising the rules of endmilling reference, need:
- Start from the bottom piece, number "**1**" (not present in this case because is a balcony door).
- From left side.
- Continue in counter clockwise.
- Associate the reference to the mullions/transoms that you meet while you are running this round.

Then, the rules of endmilling reference are as follows:
- On the left for the bottom section.
- On the bottom for the right section.
- On the right for the top section.
- On the top for the left section.
- For the mullions/transoms, see figure.

1.10. Description of the locks screwing section (optional)

The lock screwing section is identified by the keyword "**Lock**". This section is repeated as many times as the lock screwing to be performed. This section could also be not present, if no machining is required. The generic string for this section is as follows:

`Lock;``LockName;LockPos;;←`

Below is the meaning of all fields.

1) **Identification of the lock screwing section:**
`Lock;LockName;LockPos;←`
- **Description**: Use keyword "**`Lock`**". This indicates the beginning of a lock screwing section.
- **Type of string**: Alphabetic
  o **Allowed strings**: "**`Lock`**"
  Any different value will generate errors.
2) **Machining name**:
`Lock;LockName;LockPos;←`
- **Description**: Generic name to be associated to lock screwing.
- **Type of string:** Alphanumeric
3) **Lock screwing position**:
`Lock;LockName;LockPos;←`
- **Description**:
  o Indicates the position in direction X where lock screwing is required.
  o The value is in tenths of a millimetre (1/10mm).
  o Example 1230.5mm = "**12305**".
  o Please refer to the paragraph 1.8 for guidelines on how to indicate lock screwing.
- **Type of string:** Numerical

1.11.   Recapitulation chart

The following chart (Table 1) briefly describes the meaning of each field.

CLF Protocol			
String	**Description**	**Type***	**Note**
1) Configuration section: **CONFIG**;BarCodeId;ProfileCode;Length;Quantity;ColourCode;LoadBar;LengthLoadBar;OpN;SentNextMachine;←			
CONFIG	Section Identification	A	Use keyword **"CONFIG"**. Identifies the beginning of a configuration section.
BarCodeId ᵒᵖᶻ¹	Identification barcode	AN	Code identifying the programming block. This field is the barcode printed on a label. This barcode begins with n characters that correspond to filename in Work List (the number of characters can be set).
ProfileCode	Profile code	AN	Section ID code.
Length	Section length	N	Represents the section length. The values are in tenths of a millimetre (1/10mm). For example 1230.5mm = **"12305"**.
Quantity	Quantity	N	Quantity of parts to be cut and/or machined. Always enter **"1"**.
ColourCode ᵒᵖᶻ²	Colour code	AN	Colour ID code.
LoadBar ᵒᵖᶻ²	Bar loading	A	Indicates that a bar shall be loaded. ➢ **"N"**: Indicates that a bar shall be loaded. ➢ **""** indicates that a cut and/or intermediate machining is necessary. Any different value will generate errors.
LengthLoadBar ᵒᵖᶻ²	Length of bar to be loaded	N	Indicates the length of bar to be loaded. It can be a new bar or a remainder or crop end. The value is in tenths of a millimetre (1/10mm). For instance, enter **"60000"** if new bar is 6m long. Or, in case of a crop end 4.5m long, enter **"45000"**. This field shall be filled out only if a bar is being loaded, i.e. when **"LoadBar"** field (previous point) is set to **"N"**, or it shall be left empty.
ResLabel (opzionale)	**Identification for rest bar label**	AN	Enter from RE000 to RE999, to indicate which label to print for rest of the bar. Enter this identifier only in the last piece of the bar.
OpN (opzionale)	**Identification of operator**	AN	To indicate the operator.
SentNextMachine (opzionale)	**Identification to send the piece to downstream machine**	N	0: Download the piece on Graf Synergy machine 1: Send the piece to the downstream machine
Table 1.1			

CLF Protocol			
String	**Description**	**Type***	**Note**
2) General information section ^{opz3}: **INFO**;LoadBarBox;DownLoadPieceBox;DownLoadOffCutBox;WinType;Order;CustomerCode;←			
INFO	Section Identification	A	Use keyword **"INFO"**. Identifies the beginning of a general information section.
LoadBarBox	Box of bar to be loaded	A	Indicates the box from which the bar to be loaded shall be picked up. It could be a new bar or a crop end, or a piece to be machined (for the FabPlus version).
DownLoadPiece Box	Box where piece shall be put.	AN	Indicates the box where cut and/or machined piece shall be unloaded
DownLoad OffCutBox	Box where to put bar crop end	AN	Indicates the box where bar crop end shall be put.
WinType	Window type	A	A description to identify the type of window/door. Used for information only.
Order	Order reference	AN	A description to identify the order number.
CustomerCode	Customer code	AN	A description to identify the customer
3) Matching section with the "LA1" print file ^{opz1}: **LabId**;LabelNumber;←			
LabId	**Identification of section**	A	Use keyword **"LabId"**. This indicates the beginning of this section.
LabelNumber	**Label number**	N	3-digit code that uniquely identifies the label to be printed, taking it form relative block inside the file LA1.
4) Window information section: **WinInfo**;Pos;Height;Width;InColor;OutColor;Glasket;←			
WinInfo	**Identification of section**	A	Use keyword **"WinInfo"**. This indicates the beginning of this section
Pos	**Profile position**	N	Profile position in the "square". If the inside view of the window is up on machine, the profile position are: ➢ **"1"** for bottom profile. ➢ **"2"** for right profile. ➢ **"3"** for up profile. ➢ **"4"** for left profile.
Height	**Window height**	N	Insert window height. Value in 1/10mm.
Width	**Window width**	N	Insert window height. Value in 1/10mm.
InColor	**Inside profile colour**	AN	Write **"WH"** if inside profile colour is white, whichever string if inside window is coloured.
OutColor	**Outside profile colour**	AN	Write **"WH"** if outside profile colour is white, whichever string if outside window is coloured.
Glasket	**Gasket inside**	AN	If gasket in inside. ➢ **"G"** if gasket is inside. ➢ "" or " "if gasket isn't inside.
Table 1.2			

CLF Protocol			
String	**Description**	**Type***	**Note**
5) Cutting section			
5.1) Left cutting angle section: **CutAngleLeft**;CutAngleLeft1;CutAngleLeft2;←			
CutAngleLeft	Left angle identification	A	Use keyword **"CutAngleLeft"**. Identifies the beginning of left cutting angle section.
CutAngle Left1	First left cutting angle	N	Indicates the first left cutting angle. The values are in tenths of a degree (1/10°). For example 45.0° = **"450"**.
CutAngle Left2 opz4	Second left cutting angle	N	Indicates the second left cutting angle. The values are in tenths of a degree (1/10°). For example 45.0° = **"450"**.
5.2) Right cutting angle section: **CutAngleRight**;CutAngleRight1;CutAngleRight2;←			
CutAngleRight	Right angle identification	A	Use keyword **"CutAngleRight"**. Identifies the beginning of right cutting angle section.
CutAngle Right1	First right cutting angle	N	Indicates the first right cutting angle. The values are in tenths of a degree (1/10°). For example 45.0° = **"450"**.
CutAngle Right2 opz4	Second right cutting angle	N	Indicates the second right cutting angle. The values are in tenths of a degree (1/10°). For example 45.0° = **"450"**.
5.3) Left cutting offset section opz4: **CutOffsetLeft**;CutOffsetLeftQuantity;←			
CutOffset Left	Identification of the left cutting offset	A	Use keyword **"CutOffsetLeft"**. Identifies the beginning of left cutting offset section.
CutOffset LeftQuantity	Left cutting offset	N	Indicates left cutting offset. The values are in tenths of a millimetre (1/10mm). For example 25.0mm = **"250"**.
5.4) Right cutting offset section opz4: **CutOffsetRight**;CutOffsetRightQuantity;←			
CutOffset Right	Identification of the right cutting offset	A	Use keyword **"CutOffsetRight"**. Identifies the beginning of right cutting offset section.
CutOffset RightQuantity	Right cutting offset	N	Indicates right cutting offset. The values are in tenths of a millimetre (1/10mm). For example 25.0mm = **"250"**.
6) Reinforcement section opz5: **Reinforcement**;ReinforcementCode;ReinforcementLenght;MachineNumber/NotSendToPlasma; Fixlenght;CutAngleLeftReinforcement;CutAngleRightReinforcemen;←			
Reinforcement	Reinforcement identification	A	Use keyword **"Reinforcement"**. Identifies the beginning of a reinforcement section.
Reinforcement Code	Reinforcement code	AN	Reinforcement ID code.
Reinforcement Lenght	Reinforcement Length	N	Represents reinforcement cut length. The values are in tenths of a millimetre (1/10mm). For example 1230.5mm = **"12305"**.
Table 1.3			

CLF Protocol			
String	**Description**	**Type***	**Note**
MachineNumber /NotSendToPlasma	Number of downstream machine	N	This is the number of downstream machine to switch to the piece for the next machining. Indicate which machine, downstream of the main machine, switch the pieces to perform the next machining. The values are 1,2, ... Or if the information has to be passed to the iron cutting machine. To be used if you want to use pre-cut iron. If put "0", the information is passed to the iron cutting machine to cut the reinforcement. If put "1", the information is not passed to the iron cutting machine and therefore the reinforcement will not be cut and the pre-cut reinforcements will have to be used.
Fixlenght	**Lenght cut fix**	N	If is possible cut the reinforcement less of value in the field "ReinforcementLenght". If value is 1, the length of reinforcement must to be fix. If value is 0, the length of reinforcement can to be less, for have better optimization of reinforcement bar.
CutAngleLeftReinforcement	Left cutting angle of reinforcement	N	Indicates the left cutting angle of reinforcement. The values are in tenths of a degree (1/10°). For example 135.0° = **"1350"**. ➢ **"1350"** for cutting at 135.0°. ➢ **"900"** or "" for cutting at 90.0°.
CutAngleRightReinforcement	Right cutting angle of reinforcement	N	Indicates the right cutting angle of reinforcement. The values are in tenths of a degree (1/10°). For example 135.0° = **"1350"**. ➢ **"1350"** for cutting at 135.0°. ➢ **"900"** or "" for cutting at 90.0°.
7) Message section of second row of display ᵒᵖᶻ¹: **Disp2**;GenericMessage;MachineNumber;←			
Disp2	Identification of this section	A	Use keyword **"Disp2"**. This indicates the beginning of section of second row of display on belt unloading table.
GenericMessage	Message to be showed	AN	Generic message to be showed.
MachineNumber	Number of downstream machine	N	This is the number of downstream machine to switch to the piece for the next machining. Indicate which machine, downstream of the main machine, switch the pieces to perform the next machining. The values are **1**,**2**, ...

Table 1.4

CLF Protocol			
String	**Description**	**Type***	**Note**
8) Machining jobs section ^{opz6}: **Fab**;FabName;FabPosPar1;FabPosPar2;FabPosPar3;FabPosPar4;FabPosPar5;←			
Fab	Machining jobs identification	A	Use keyword **"Fab"**. Identifies the beginning of a machining job section.
FabName	Machining name	AN	Generic name to be associated to machining job.
FabPosPar1	Parameter number 1 (X axes) of machining position	N	Indicates the position in direction X where machining is required. The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Please refer to the paragraph 1.8.1. for guidelines on how to indicate machining jobs.
FabPosPar2	Parameter number 2 (Y or Z axes) of machining position (optional)	N	Indicates the position in direction Y or Z (in function of the face where do the machining) where machining is required. The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Optional field. If no present we'll use the default value inserted in the program of machining. This field will only take effect if the machining is made of a single process.
FabPosPar3	Parameter number 3, slot width, hole diameter or greater diameter of key cylinder (parameter DX) (optional)	N	Indicates: ➢ the width in the case of machining slot ➢ the diameter in the case of machining hole ➢ the greater diameter in the case of the processing of the key cylinder The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Optional field. If no present we'll use the default value inserted in the program of machining. This field will only take effect if the machining is made of a single process.
FabPosPar4	Parameter number 4, slot length, hole diameter or length of key cylinder (parameter DY\DZ) (optional)	N	Indicates: ➢ the length in the case of machining slot ➢ the diameter in the case of machining hole ➢ the length in the case of the processing of the key cylinder The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Optional field. If no present we'll use the default value inserted in the program of machining. This field will only take effect if the machining is made of a single process.
Table 1.5			

CLF Protocol			
String	**Description**	**Type***	**Note**
FabPosPar5	Parameter number 5, width of key cylinder (parameter LdPic) (optional)	N	Indicates: ➤ the width in the case of the processing of the key cylinder The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Optional field. If no present we'll use the default value inserted in the program of machining. This field will only take effect if the machining is made of a single process.
9) Mullion end milling section [opz5]: **EndMilH**;MilName;MilPos;← **EndMilT**;MilName;MilPos;←			
EndMilH	Mullion end milling identification	A	Use keyword **"EndMilH"**. Identifies the beginning of a mullion end milling on head section.
MilName	Mill name	AN	Generic name to be associated to end milling.
MilPos	Mullion end milling position	N	Indicates the position in direction X where end milling is required. The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**.
EndMilT	Mullion end milling identification	A	Use keyword **"EndMilT"**. Identifies the beginning of a mullion end milling on tail section.
MilName	Mill name	AN	Generic name to be associated to end milling.
MilPos	Mullion end milling position	N	Indicates the position in direction X where end milling is required. The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**. Please refer to the paragraph 1.8.1. for guidelines on how to indicate machining jobs.
10) Lock screwing section [opz6]: **Lock**;LockName;LockPos;←			
Lock	Lock screwing identification	A	Use keyword **"Lock"**. Identifies the beginning of a lock screwing section.
LockName	Lock name	AN	Generic name to be associated to lock screwing.
LockPos	Lock screwing position	N	Indicates the position in direction X where lock screwing is required. The value is in tenths of a millimetre (1/10mm). Example 1230.5mm = **"12305"**.
Table 1.6			

Notes: * Type:
    ● AN = Alphanumeric
    ● N = Numerical
    ● A = Alphabetical
[opz1]: optional
[opz2]: optional
[opz4]: option in case of single cut and LinearCat500FabNotch.
[opz5]: option.
[opz6]: Can be repeated n times. Absent if no machining is required.			

2. Examples

Referring to the technical data contained in [Appendix A](#), following are two examples of this protocol. The first one, file "**00001.Clf**, is for a two-leaf window, while the second one, file "**00002.Clf**", is for a door.

1) File "**00001.Clf**":

```
CONFIG;000010000001;1505;14050;1;WHITE;N;60000;;OpN01;1;
INFO;LoadBox LB1;DownLoadPiceBox DLP2;;FRAME DOWN;27/2008;Graf Synergy;
LabId;001;
WinInfo;1;13000;14000;WH;WH;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;AC3;1;
Fab;WATER_SLOT_EXT;825;355;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;12525;
Fab;WATER_SLOT_EXT;13225;355;250;50;
Fab;FIX_WALL;2025;
Fab;FIX_WALL;7025;
Fab;FIX_WALL;12025;
Fab;SECURITY_KEEP;6025;
CONFIG;000010000002;1505;13050;1;WHITE;;;;OpN01;1;
INFO;;DownLoadPiceBox DLP2;;FRAME RIGHT;27/2008;Graf Synergy;
LabId;002;
WinInfo;2;13000;14000;WH;WH;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;AA3;1;
Fab;FIX_WALL;2025;
Fab;FIX_WALL;6525;
Fab;FIX_WALL;11025;
Fab;HINGE_FRAME;1325;
Fab;HINGE_FRAME;11725;
Fab;KEEP;3025;65;50;50;
CONFIG;000010000003;1505;14050;1;WHITE;;;;OpN01;;
INFO;;DownLoadPiceBox DLP2;;FRAME UP;27/2008;Graf Synergy;
LabId;003;
WinInfo;3;13000;14000;WH;WH;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;CC3;1;
Fab;WATER_SLOT_EXT;825;355;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;12525;
Fab;WATER_SLOT_EXT;13225;355;250;50;
Fab;FIX_WALL;2025;
Fab;FIX_WALL;7025;
Fab;FIX_WALL;12025;
```

```
Fab;KEEP;6025;65;50;50;
Fab;KEEP;8025;65;50;50;
CONFIG;000010000004;1505;13050;1;WHITE;;;RE001;OpN01;;
INFO;;DownLoadPiceBox   DLP2;DownLoadCutOffBox   DLCO3;FRAME   LEFT;27/2008;Graf
Synergy;
LabId;004;
WinInfo;4;13000;14000;WH;WH;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;DC3;1;
Fab;FIX_WALL;2025;
Fab;FIX_WALL;6525;
Fab;FIX_WALL;11025;
Fab;HINGE_FRAME;1325;
Fab;HINGE_FRAME;11725;
Fab;KEEP;10025;65;50;50;
Fab;SECURITY_HINGE;7525;
CONFIG;000010000005;1601;6050;1;WHITE;N;60000;;OpN01;;
INFO;LoadBox LB2;DownLoadPiceBox DLP3;;SASH 2 DOWN;27/2008;Graf Synergy;
LabId;005;
WinInfo;1;11000;6000;WH;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;EC3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;4525;
Fab;WATER_SLOT_EXT;5225;655;250;50;
CONFIG;000010000006;1601;11050;WHITE;;;;OpN01;;
INFO;;DownLoadPiceBox DLP3;;SASH 2 RIGHT;27/2008;Graf Synergy;
LabId;006;
WinInfo;2;11000;6000;WH;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;FC3;1;
Fab;HINGE_SASH_R;10525;
CONFIG;000010000007;1601;6050;1;WHITE;;;;OpN01;;
INFO;;DownLoadPiceBox DLP3;;SASH 2 UP;27/2008;Graf Synergy;
LabId;007;
WinInfo;3;11000;6000;WH;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;HC3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;4525;
Fab;WATER_SLOT_EXT;5225;655;250;50;
CONFIG;000010000008;1601;11050;1;WHITE;;;;OpN01;1;
INFO;;DownLoadPiceBox DLP3;;SASH 2 LEFT;27/2008;Graf Synergy;
```

```
LabId;008;
WinInfo;4;11000;6000;WH;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;LC3;1;
Fab;HANDLE;5525;
CONFIG;000010000009;1601;6050;1;WHITE;;;;OpN01;;
INFO;;DownLoadPiceBox DLP4;;SASH 1 DOWN;27/2008;Graf Synergy;
LabId;009;
WinInfo;1;11000;6000;C;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;PC3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;4525;
Fab;WATER_SLOT_EXT;5225;655;250;50;
CONFIG;000010000010;1601;11050;1;WHITE;;;;OpN01;1;
INFO;;DownLoadPiceBox DLP4;;SASH 1 RIGHT;27/2008;Graf Synergy;
LabId;010;
WinInfo;2;11000;6000;C;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;UC3;1;
Fab;;;
CONFIG;000010000011;1601;6050;1;WHITE;;;RE002;OpN01;;
INFO;;DownLoadPiceBox  DLP4;DownLoadCutOffBox  DLCO4;SASH  1  UP;27/2008;Graf
Synergy;
LabId;011;
WinInfo;3;11000;6000;C;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;JC3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;4525;
Fab;WATER_SLOT_EXT;5225;655;250;50;
CONFIG;000010000012;1601;11050;1;WHITE;N;60000;RE003;OpN01;;
INFO;LoadBox LB2;DownLoadPiceBox DLP4;;SASH 1 LEFT;27/2008;Graf Synergy;
LabId;012;
WinInfo;4;11000;6000;C;WH;;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;JA3;1;
Fab;HINGE_SASH_L;525;
Fab;SECURITY_HINGE;6525;
```

2) File "**00002.CLF**":

```
CONFIG;000020000001;1505;24025;1;WHITE;N;60000;;OpN01;1;
INFO;LoadBox LB1;DownLoadPiceBox DLP2;;FRAME RIGHT;28/2008;Graf Synergy;
LabId;001;
WinInfo;2;24000;130000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;900;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;JA3;1;
Fab;HINGE_FRAME;2000;
Fab;HINGE_FRAME;8000;
Fab;HINGE_FRAME;14000;
Fab;HINGE_FRAME;20000;
CONFIG;000020000002;1505;13050;1;WHITE;;;;OpN01;1;
INFO;;DownLoadPiceBox DLP2;;FRAME UP;28/2008;Graf Synergy;
LabId;002;
WinInfo;3;24000;130000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;JC3;1;
CONFIG;000020000003;1505;24025;1;WHITE;;;RE001;OpN01;;
INFO;;DownLoadPiceBox  DLP2;DownLoadCutOffBox  DLCO3;FRAME  LEFT;28/2008;Graf
Synergy;
LabId;003;
WinInfo;4;24000;130000;C;C;G;
CutAngleLeft;900;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;;;
Disp2;JE3;1;
Fab;KEEP_CYLINDER_L;12525;
Fab;KEEP_SECURITY_DOOR;3525;
Fab;KEEP_SECURITY_DOOR;21525;
CONFIG;000020000004;1601;11050;1;WHITE;N;60000;;OpN01;;
INFO;LoadBox LB2;DownLoadPiceBox DLP2;;SASH DOWN;28/2008;Graf Synergy;
LabId;004;
WinInfo;1;23000;110000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;1350;450;
Disp2;JF3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;9525;
Fab;WATER_SLOT_EXT;10225;655;250;50;
CONFIG;000020000005;1601;23050;1;WHITE;;;;OpN01;;
INFO;LoadBox LB2;DownLoadPiceBox DLP3;;SASH RIGHT;28/2008;Graf Synergy;
LabId;005;
WinInfo;2;23000;110000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
```

```
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;1350;450;
Disp2;JH3;1;
Fab;HINGE_SASH;2525;
Fab;HINGE_SASH;8525;
Fab;HINGE_SASH;14525;
Fab;HINGE_SASH;20525;
CONFIG;000020000006;1601;11050;1;WHITE;;;;OpN01;;
INFO;;DownLoadPiceBox DLP3;;SASH UP;28/2008;Graf Synergy;
LabId;006;
WinInfo;3;23000;110000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;1350;450;
Disp2;JL3;1;
Fab;WATER_SLOT_EXT;825;655;250;50;
Fab;WATER_SLOT_INT;1525;
Fab;WATER_SLOT_INT;9525;
Fab;WATER_SLOT_EXT;10225;655;250;50;
CONFIG;000020000007;1601;23050;1;WHITE;;;RE002;OpN01;;
INFO;;DownLoadPiceBox   DLP3;DownLoadCutOffBox   DLCO3;SASH   LEFT;28/2008;Graf
Synergy;
LabId;007;
WinInfo;4;23000;110000;C;C;G;
CutAngleLeft;1350;;
CutAngleRight;450;;
CutOffsetLeft;;
CutOffsetRight;;
Reinforcement;;;;1350;450;
Disp2;JP3;1;
Fab;CYLINDER_L;12525;
Fab;SECURITY_SLOT;2525;315;1700;160;
Fab;SECURITY_SLOT;20525;315;1700;160;
```

3. Appendix A

3.1. Cutting specifications for two-leaf window

Figure A.1 shows the cutting specifications for a two-leaf window.
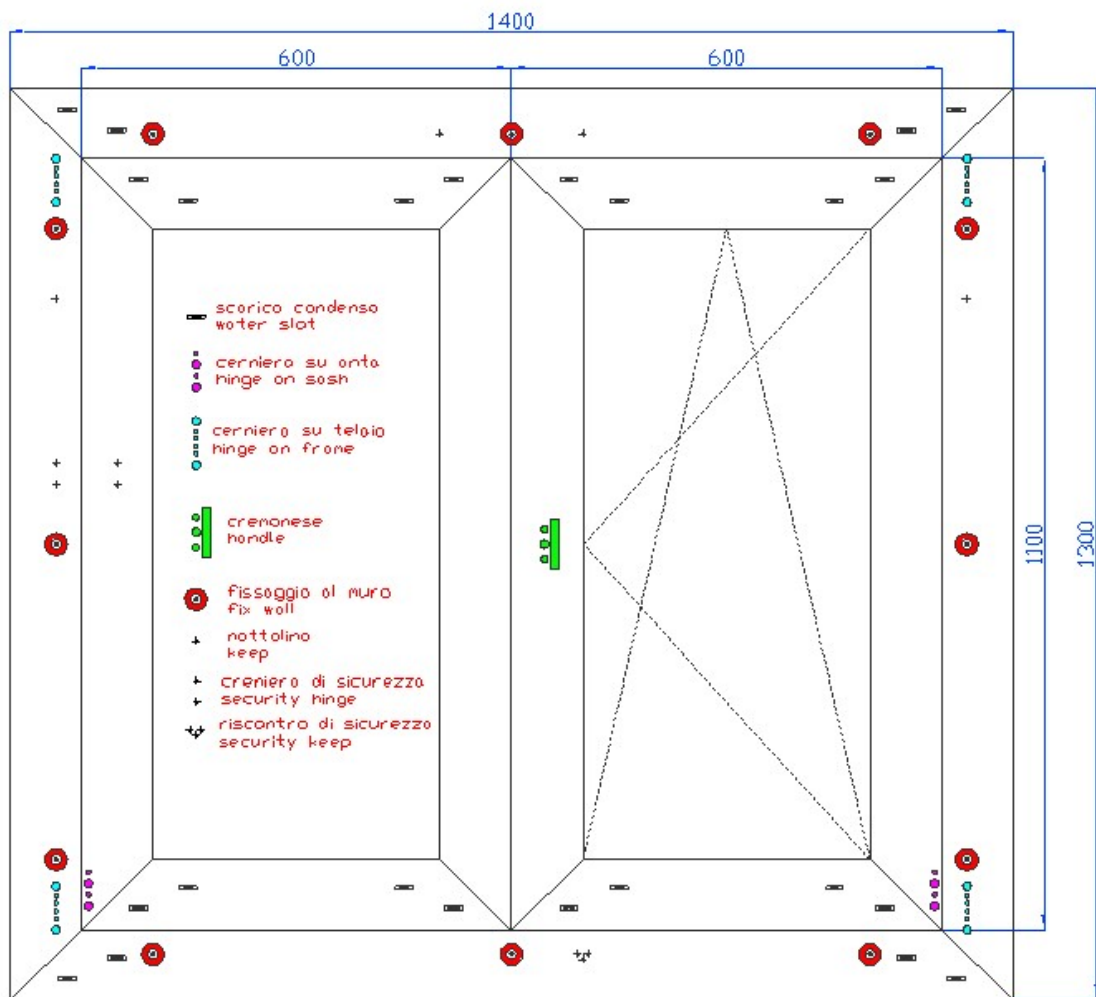
Figura A.1

These cutting distances shall be added with the burn-off value (for these examples we used a burn-off value of 2.5mm).

3.2.   Cutting specifications for door

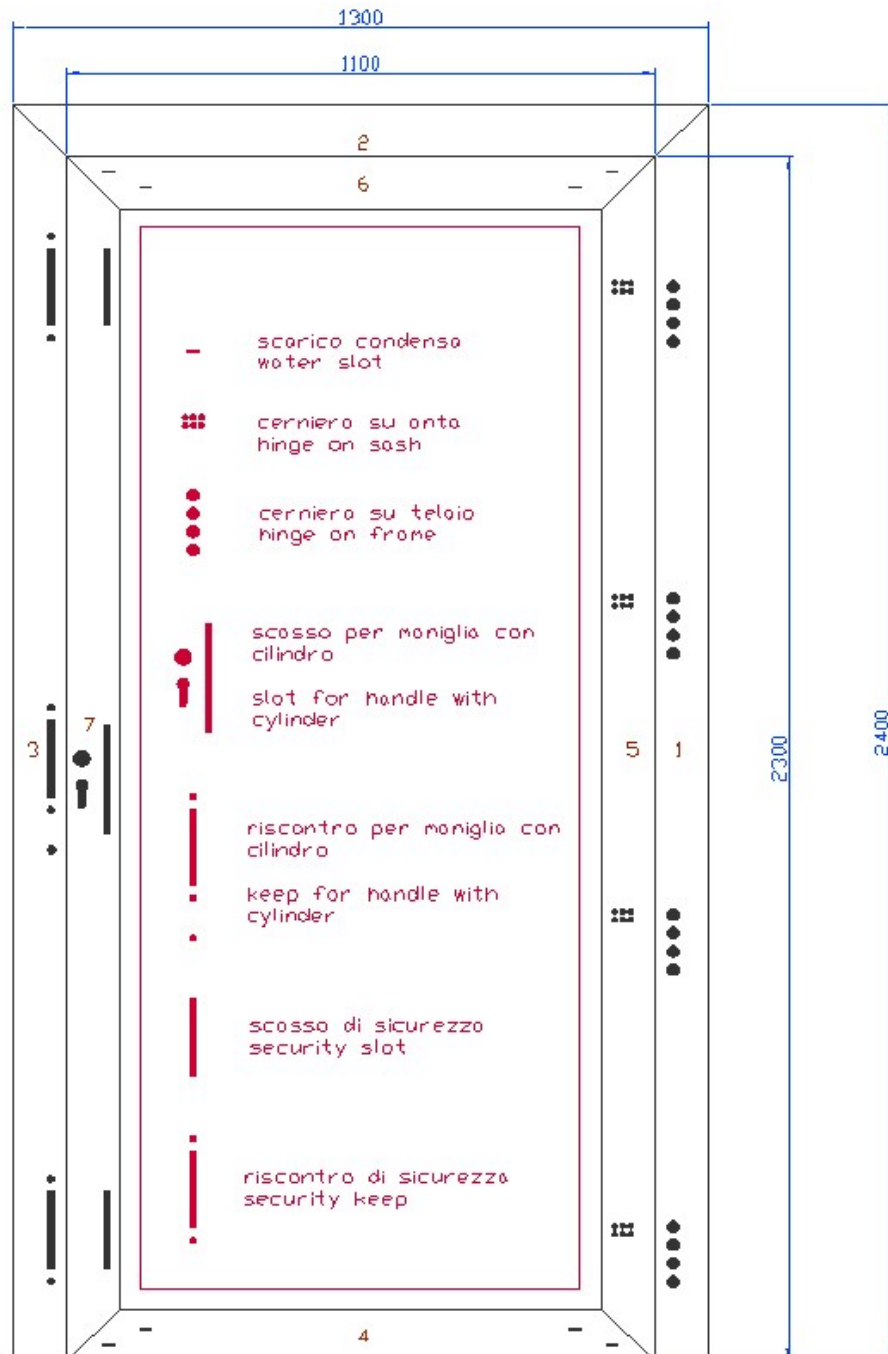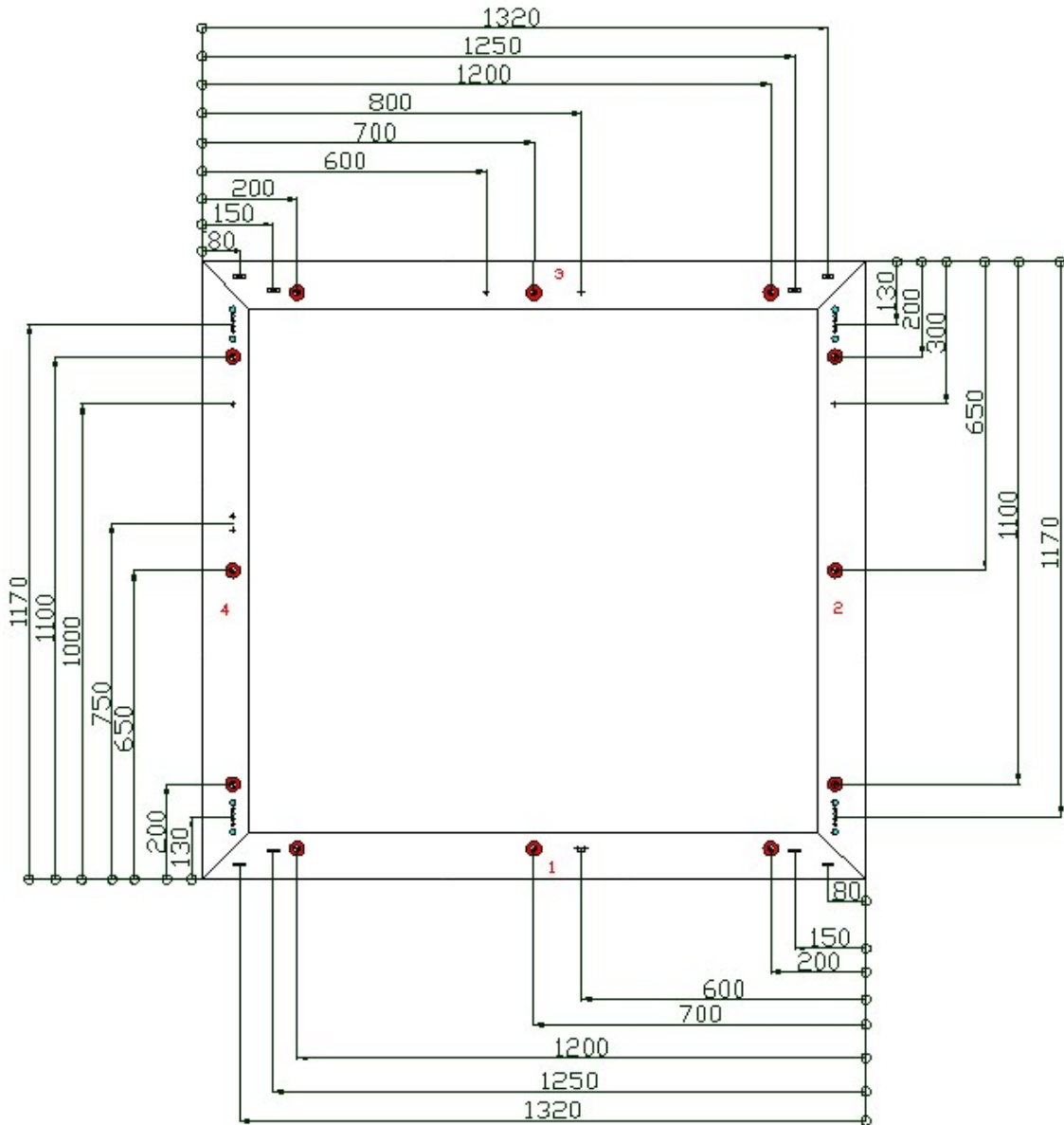Figure A.2 shows the cutting specifications for a door.

Figura A.2

These cutting distances shall be added with the burn-off value (for these examples we used a burn-off value of 2.5mm).

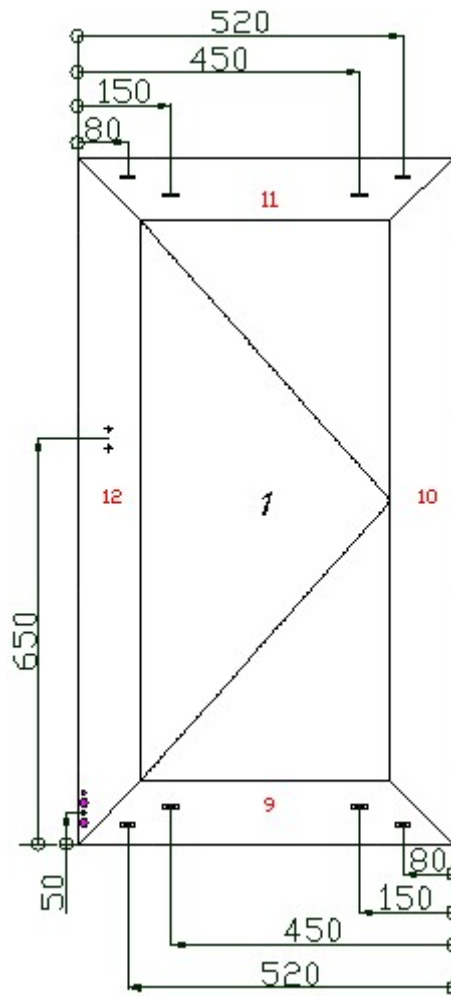## 3.3. Cutting specifications for two-leaf window machining jobs

Figures A.3 and A.4 show the details supplied by the customer concerning how to distribute machining jobs for a two-leaf window. Figure A.3 is for the frame, while figure A.4 is for the leaves.
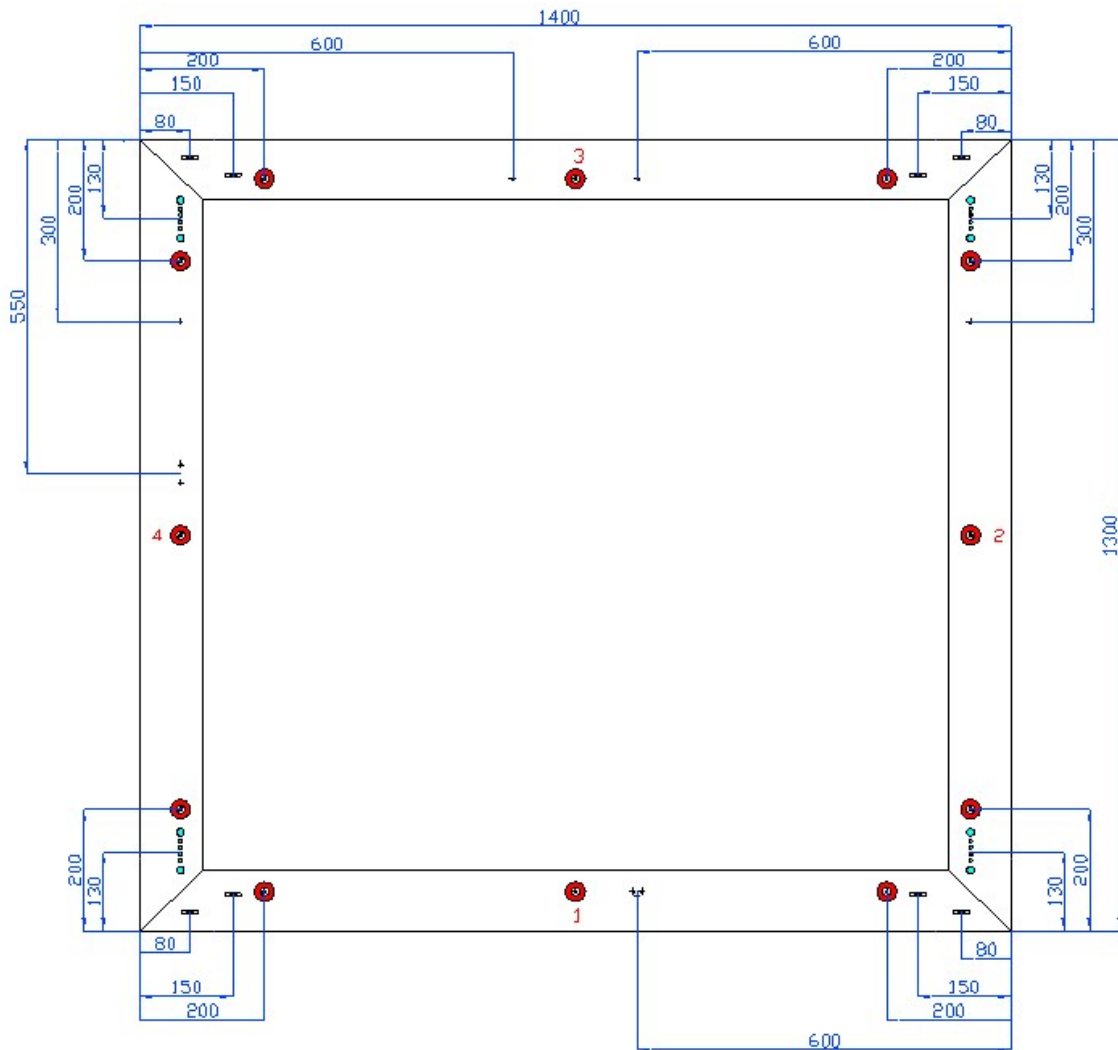
Figura A.3
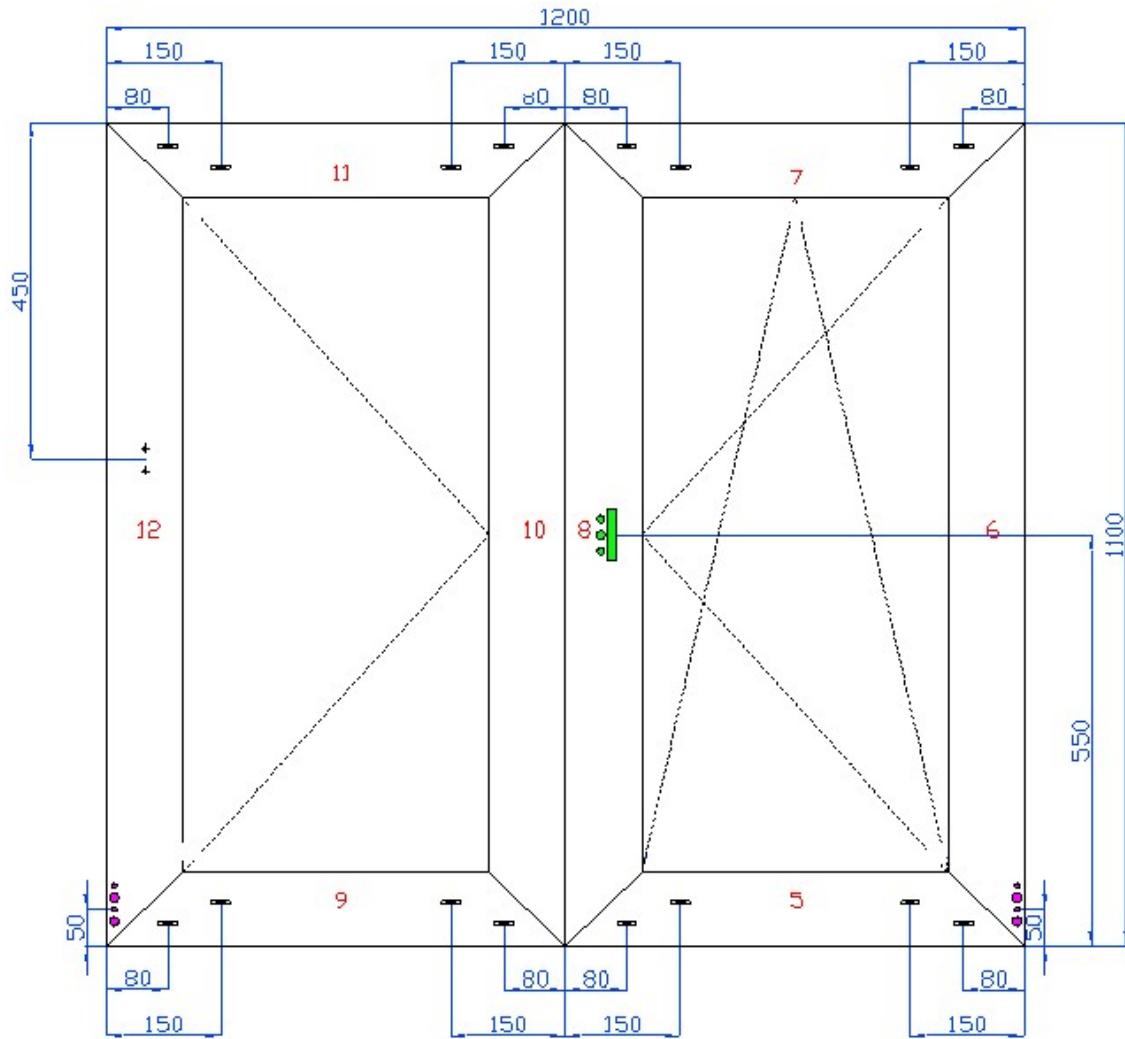
Figura A.4

Figures A.5, A.6, A.7 show how to enter the distances in the machine using the management programme, for a two-leaf window. Figure A.5 is for the frame, figure A.6 is for the first leaf, while figure A.7 is for the second leaf. These distances shall be added with the burn-off value (for these examples we used a burn-off value of 2.5mm).
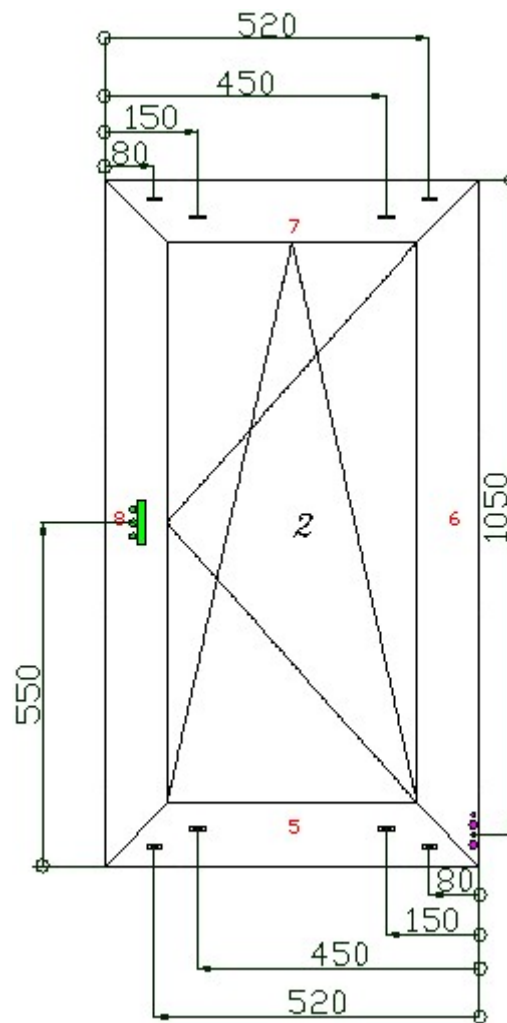

Figure A.5

Figure A.6

Figure A.7

3.4.   Specifications for door machining jobs

Figures A.8 and A.9 show the details supplied by the customer concerning how to distribute machining jobs for a door. Figure A.8 is for the frame, while figure A.9 is for the leaves.
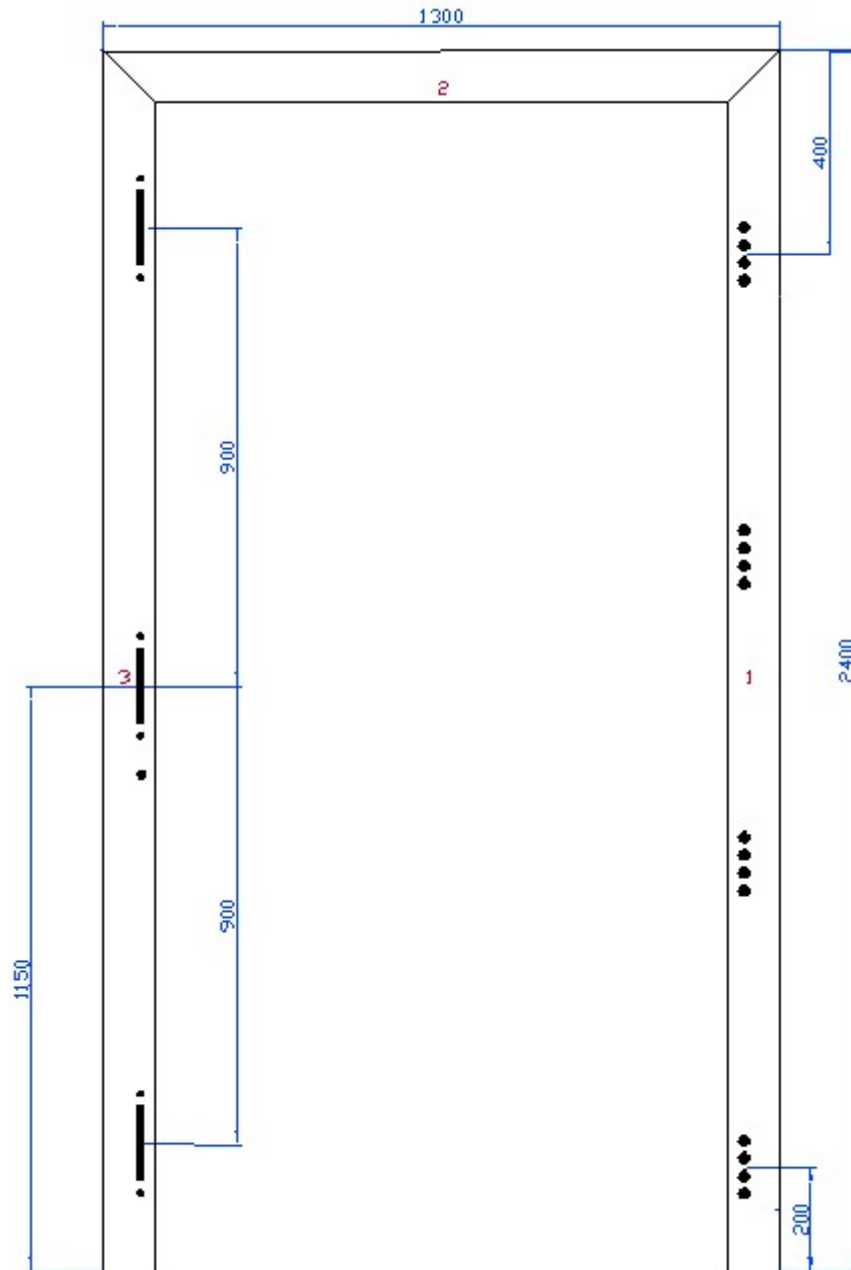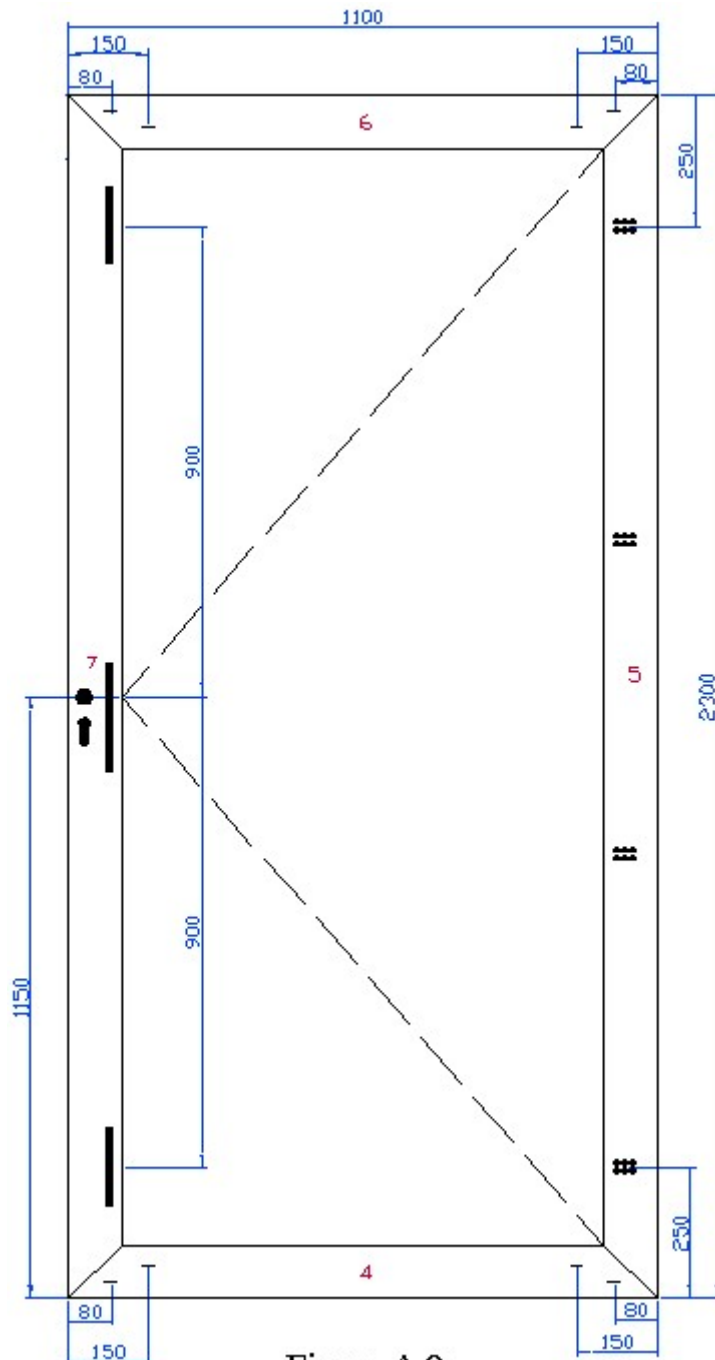

Figura A.8

Figura A.9

Figures A.10 and A.11 show how to enter the distances in the machine using the management programme, for a door. Figure A.10 is for the frame, while figure A.11 is for the leaf. These distances shall be added with the burn-off value (for these examples we used a burn-off value of 2.5mm).
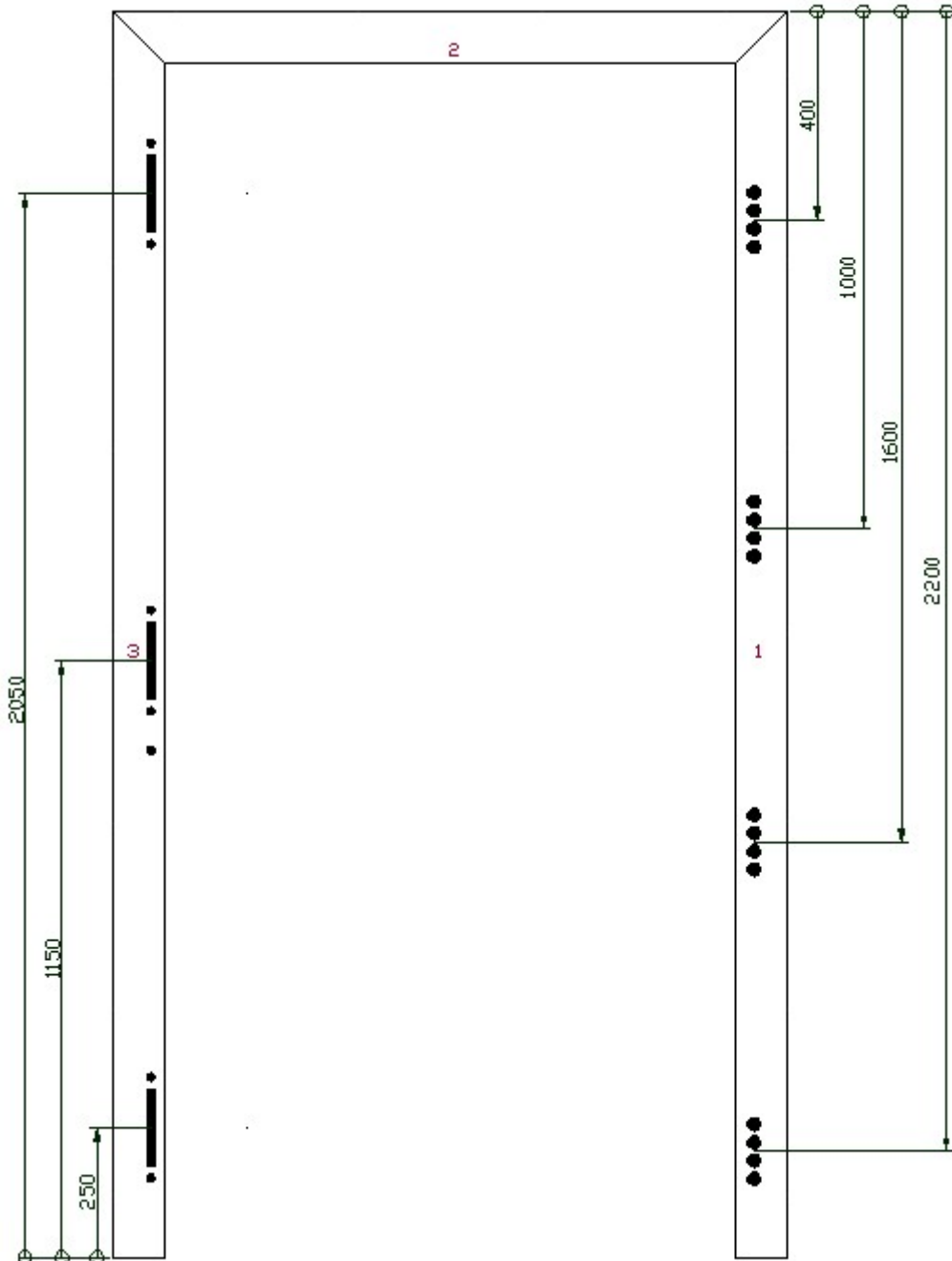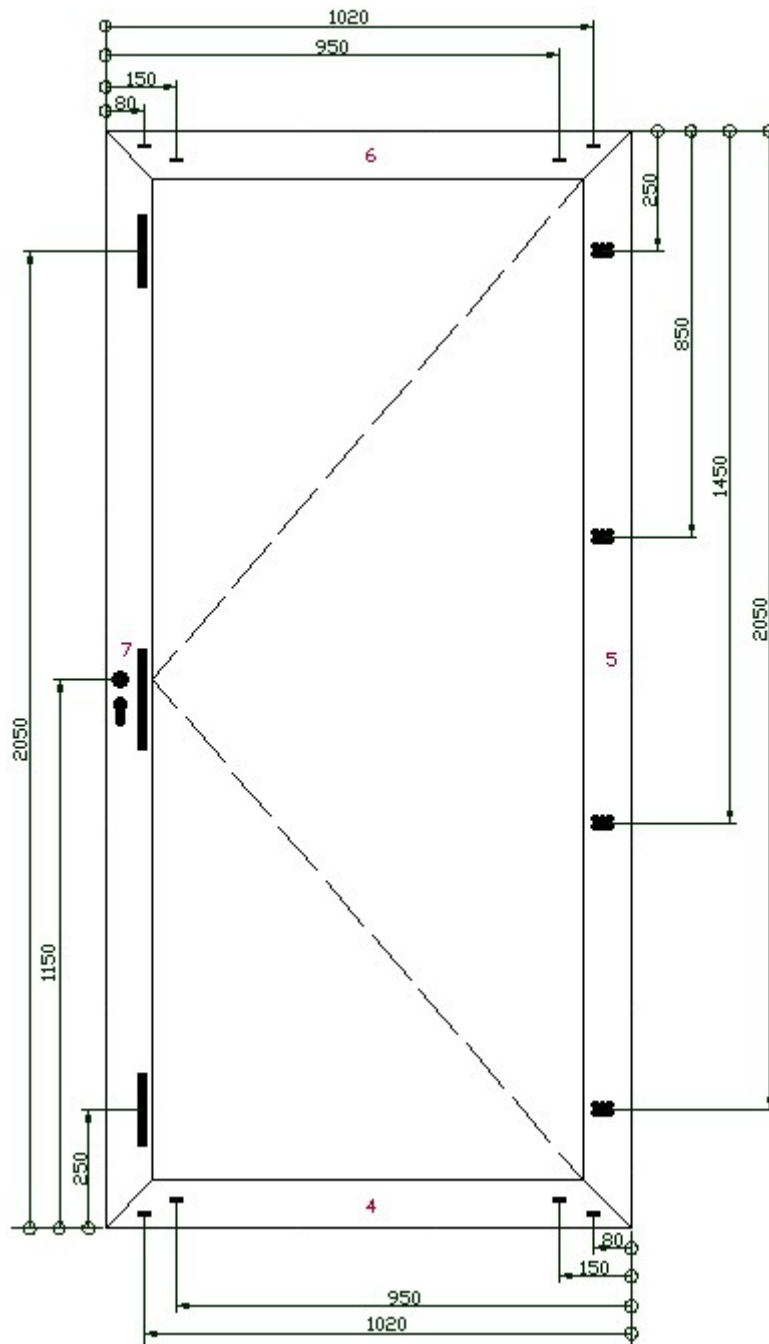

Figure A.10

Figure A.11