



# Idea

Operating manual

CE

**D430478XA**  
vers. 6.0

EN



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## REFERENCE GUIDE

This manual has been produced to serve as a guide for users of the IDEA key-cutting machine: Read it carefully; it is essential if you wish to operate your machine safely and efficiently.

### CONSULTATION

The contents of the manual are divided into sections relating to:

• Machine description .....	Chapter	1
• Transport and installation .....	Chapters	2-3
• Regulation and use .....	Chapters	4-5-6
• Maintenance .....	Chapters	7-8-9

### TECHNICAL TERMS

Common technical terms are used in this manual.

To assist those with little experience of keys and key-cutting, below is an illustration of the terms most frequently used.

- 1) Head
- 2) Stem
- 3) Bit

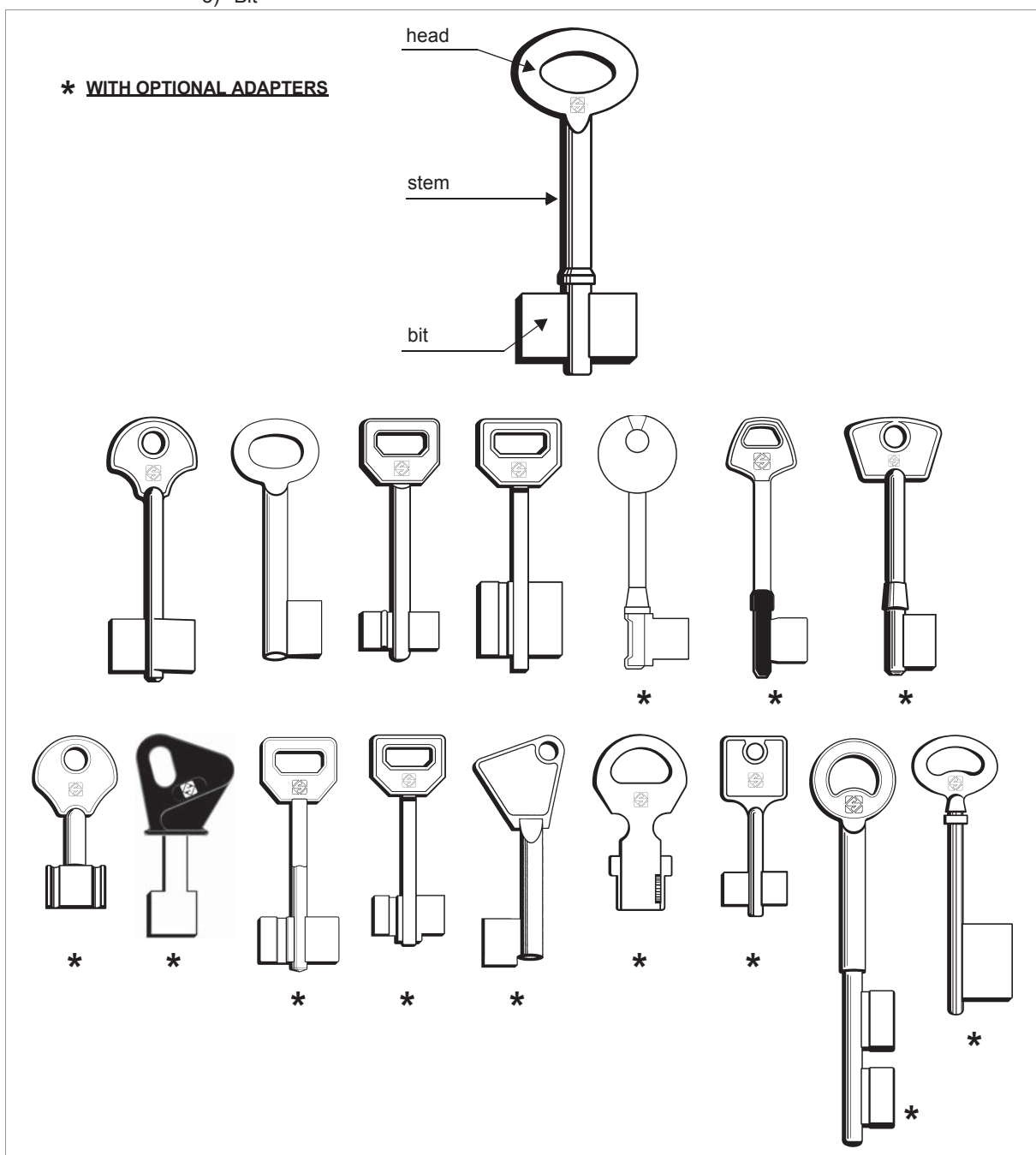


Fig. 1

## CHARACTERISTICS OF KEYS FOR READING AND DECODING

The IDEA electronic key-cutting machine is designed to take a number of different types of mortice and bit, double bit, pump keys, etc. The following are the general key characteristics and conformations for which the machine has been designed or for which special adapters can be fitted in order to develop specific cutting systems.

In addition to the machine's general technical characteristics already described, keys with the following parameters can be cut on the IDEA (fig. 2, fig. 3, fig. 4, fig. 5, fig. 6 and fig. 7).

### STEM

- LENGTH: the machine is provided with a headstop and designed to take keys with lengths of up to 150 mm;
- DIAMETER: the self-centering jaws on the rotating clamp will take stems with diameters from Ø 3,6 - 7 mm.
- HOLLOW STEMS: female keys are gripped normally by the jaws and a special tailstock is provided for self-centering grip on the hole at the tip with diameters from Ø 2 - 5 mm, by centring.

### HEAD

- WIDTH: the grip for the head of a bit or double bit key is the means for visual alignment of the key.

### BIT

- THICKNESS: maximum 7 mm for brass keys / max. 4 mm for steel keys.

### MATERIAL

IDEA is provided with a single phase motor and single cutter speed.

These are the characteristics and variables common to all types of keys. It is now necessary to distinguish clearly between at least 3 families of keys which condition a series of functions on the machine, such as:

- a) tools to use
- b) necessary controls.

In the following pages the families of keys are illustrated so that the dimensions of any key to be cut can be compared and the reference elements found. These elements are:

- 1) BIT STOP keys (mortice and bit, double bit, round or square stem: mainly for Italian, German, Spanish markets).
- 2) SHOULDER STOP keys (with stop on rim close to the bit: mainly for English and Swedish markets).
- 3) PUMP KEYS (with round and flat stems)
- 4) SMALL BIT/DOUBLE BIT KEYS
- 5) SPECIAL BIT FEMALE KEYS
- 6) KEYS WITH REAR STOP

### BIT STOP KEYS (FIG. 2)

The minimum and maximum dimensions of this type of key are shown in the diagram below.

This class of key includes:

- mortice and bit and double bit keys
- male and female keys

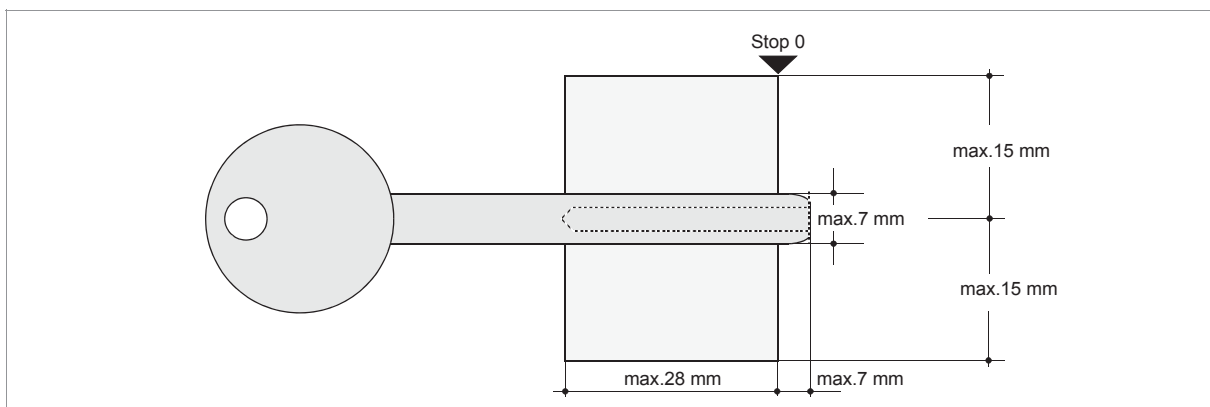


Fig. 2

**SHOULDER STOP KEYS (ENGLISH TYPE) (FIG. 3)**

The minimum and maximum dimensions of this type of key are shown in the diagram below.

This class of key includes:

- single bit keys with rim close to the bit
- double bit keys with rim close to the bit

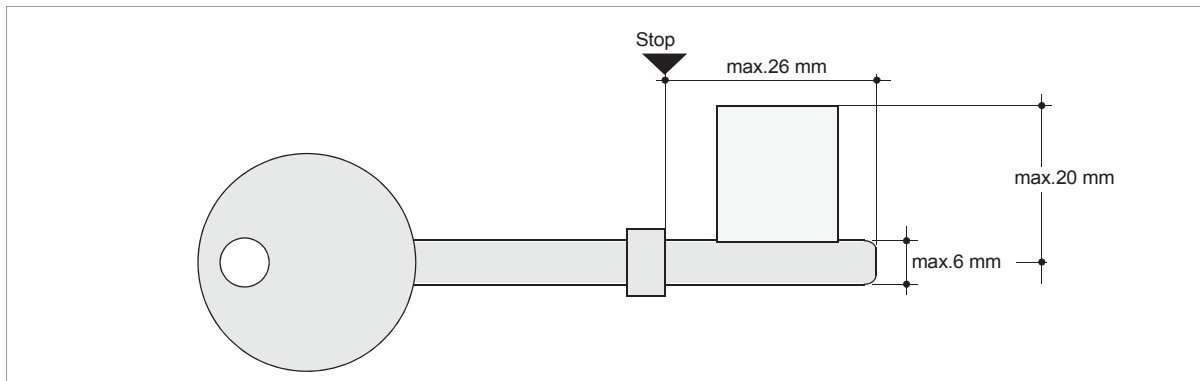


Fig. 3

**PUMP KEYS (FIG. 4)**

The minimum and maximum dimensions of this type of key are shown in the diagram below. To cut this type of key on the IDEA is necessary the optional adaptor D726180ZB.

This class of keys includes:

- pump keys with round stems ( $\varnothing$  max. 7 mm - min. 4 mm)
- pump keys with flat stems (7 mm)

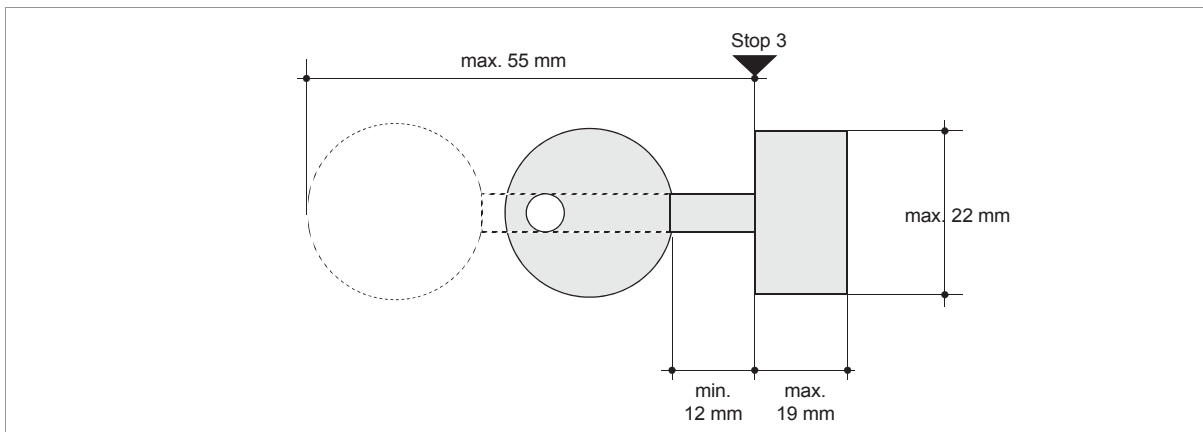


Fig. 4

**SMALL BIT/DOUBLE BIT KEYS (FIG. 5)**

The minimum and maximum dimensions of this type of key are shown in the diagram below. To cut this type of key on the IDEA is necessary the optional adaptor D727711ZB (cap. 5.13 a pag. 53).

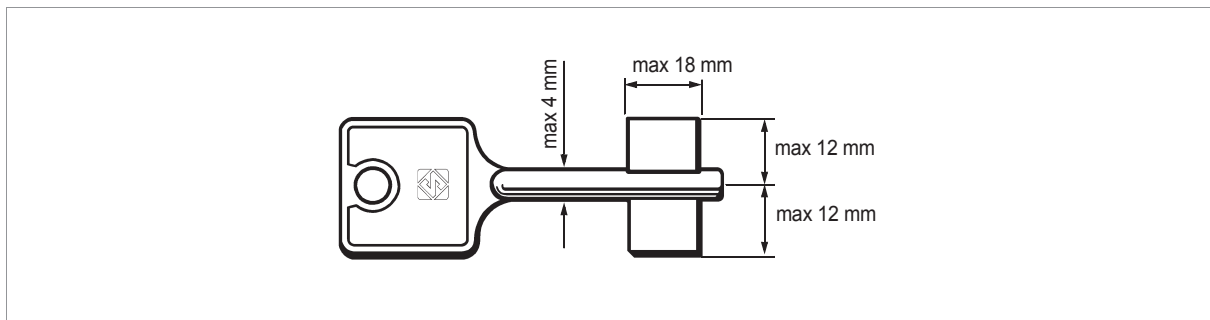


Fig. 5

**SPECIAL BIT FEMALE KEYS (FIG. 6)**

The minimum and maximum dimensions of this type of key are shown in the diagram below. To cut this type of key on the IDEA is necessary the optional adaptor D728717ZB (cap. 5.14 a pag. 57).

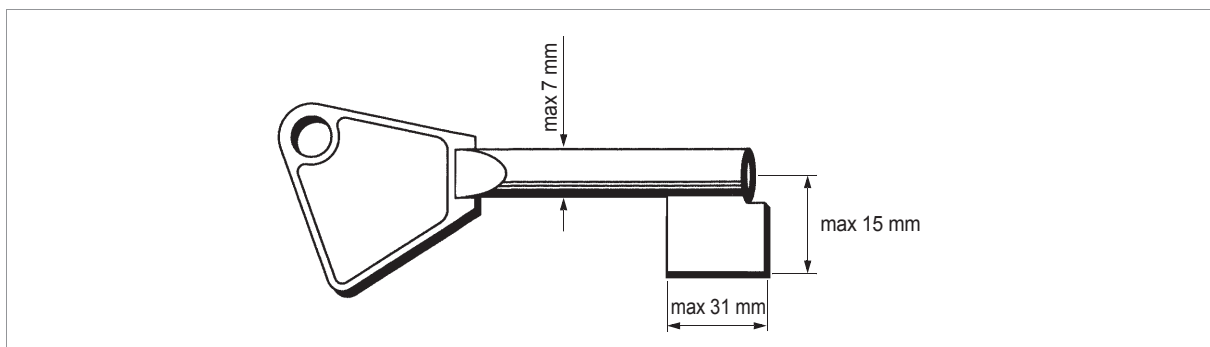


Fig. 6

**KEYS WITH REAR STOP (FIG. 7)**

The maximum dimensions of this type of keys are described in the table below. To cut this type of key on the IDEA is necessary the optional adaptor D727498ZB (cap. 5.12 a pag. 43).

TYPE OF KEYS	
Stem diameter	min. 5 mm - max. 7 mm
Collar diameter	max. 9 mm
Bit length in reading	max. 40 mm
Bit height	max. 17 mm / 19,5 mm
Distance from stop to bit	min. 6 mm
Head width	max. 30 mm

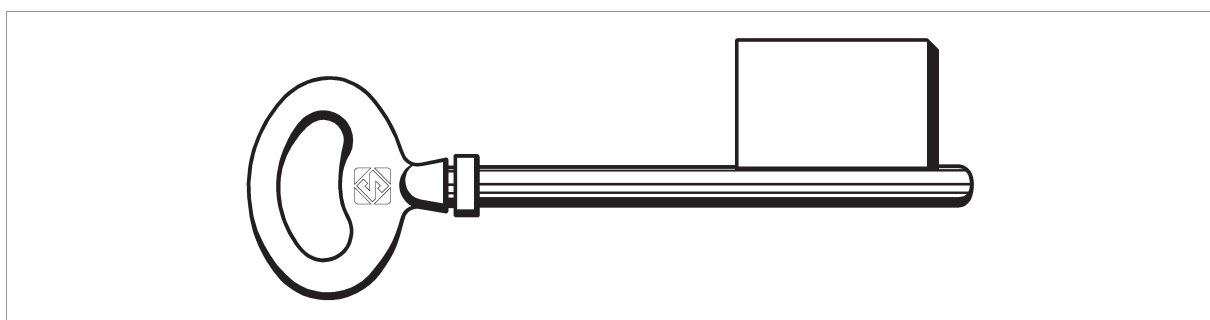


Fig. 7



## GENERAL

IDEA has been designed in compliance to the European Community normative (CE).

From the design stage, risks for the operator have been eliminated in all areas: transport, regulation, cutting and maintenance.

Further risks have been eliminated by means of protective devices.

The materials used to manufacture this machine and all its components are not hazardous.

### USE

IDEA is designed for cutting keys of ferrous materials: brass, silver nickel, etc.

It must be installed and used according to the instructions indicated by the manufacturer.

If the key-cutting machine is used differently or for purposes different from those described in this manual, the customer will forego any rights he may have over Silca S.p.A. Furthermore, unforeseen danger to the operator or any third parties may arise from incorrect use of the machine.

### INCORRECT USE

Operator negligence resulting in improper use of this machine or failure of the operator to observe the instructions written in this manual. The manufacturer may decline all guarantees and responsibilities.

It is therefore essential to carefully read this operating manual.

### IMPROPER USE OF ELECTRIC CONTACT

- **it is not permitted** to cut anodized keys, plastic keys or any keys with materials that do not have electrical conductivity by means of electric contact.
- **cuts cannot be repeated** on the same side of the key when electric contact cutting is used.

### INSTRUCTIONS MANUAL

The instructions manual provided with the machine is essential to its proper use and to carry out the necessary maintenance.

We therefore recommend protecting the manual from damage in a safe sheltered place, easily to hand for quick consultation.

### FURTHER RISKS

No further risks will arise when properly using the IDEA.

### PROTECTION AND SAFETY PRECAUTIONS FOR THE OPERATOR

IDEA is entirely built in compliance to the Machine Directives. The operations for which it has been designed are easily carried out with no risk to the operator. The adoption of general safety precautions and observation of the instructions provided by the manufacturer in this manual eliminate all human error, unless deliberate. IDEA is designed with features which make it completely safe.

#### • Power supply

IDEA is supplied with electricity by means of a grounded plug and differential switch.

#### • Start-up

The machine is turned on by means of a master switch that is located on the Idea's lower left back side.

#### • Maintenance

The operations to regulate, service, repair and clean the machine are structured in the simplest and safest way possible. Parts that the operator can dismount cannot be incorrectly replaced therefore avoiding any risks.

#### • Machine identification

The machine is provided with an identification label which includes the machine's serial number (fig. 8).

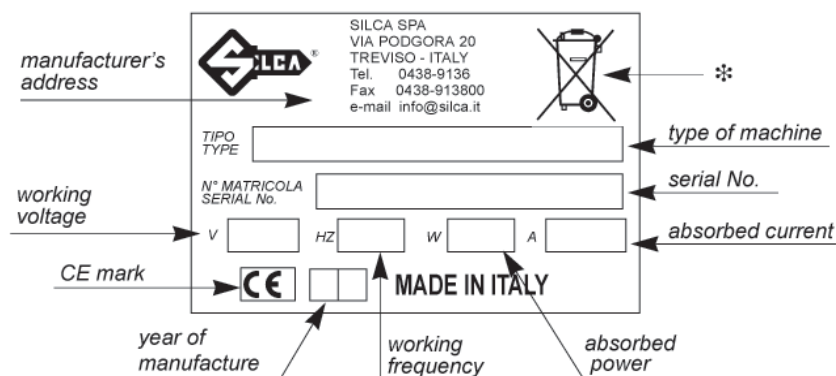


Fig. 8

(\*) see ch.8 "DISPOSAL", page 136.

# 1 MACHINE DESCRIPTION

IDEA is an electronic machine operating on 3 axes (X = spaces, Y = depths, B = radius and bit angles) with controlled movement. Accurately studied, it adds a high degree of cutting precision to operating speed and ease of use.

IDEA can be used in 4 different ways:

- entering the key code directly by means of the machine keyboard
- reading the key with a laser reader and reproducing it
- linking to a PC and Silca software
- decode and copy



Fig. 9

## 1.1 MAIN CHARACTERISTICS

- **Movements**

Movement of the two axes (X-Y) operates on ball screws activated by step motors, on rectified roller guides.

- **Clamp**

Motorized rotating clamp to control the revolving movement for the cutting radius, to turn over double bit keys and control the third axis "B";

- **Working tool**

Consists of a cutter in hard metal carbide (optional High Speed Steel), that is easily replaced. Suitable to the type of work and speed rotation needed. Optional hard metal carbide cutter.

- **Display**

Rear-illuminated and placed on the front of the machine.

Display with 4 rows of 20 characters each.

Its technical features and positioning make it highly practical in use.

- **Laser reader**

Designed to read cuts on keys to be reproduced.

## 1.2 SAFETY

- **Protective shield**

The transparent protective shield is designed to cover the working parts as completely as possible, ensuring operator safety.

The shield (U) (fig. 10, page 8) must be raised in order to fit keys for cutting or carry out other operations. Raising of the shield is controlled by a microswitch and disactivates the operating and movement functions, including the cutter. A special message appears on the display to warn that the shield is not closed.

To re-start the work cycle, place the shield in its original position and press START on the machine's keyboard.

- **Emergency stops**

The red emergency button (N) (fig. 10, page 8) placed on the right-hand side of the machine is used to stop it immediately in the event of faulty operation or danger for the operator.

When the cause of the emergency has been eliminated, turn the button 45° clockwise to disactivate it.

***NOTE: the operator is responsible for keeping the area around the button clear so that it can be reached as quickly as possible.***

- **“T” WRENCH HOLDER**

The special holder for the “T” wrench (T4), on the front of the machine below keyboard (fig. 10) prevents damage to the machine caused by inadvertently leaving the wrench on the rotating clamp or the tailstock.

It is therefore essential that the wrench (T4) is placed into its holder after use.

If the wrench (T4) is not in its holder the machine will not begin the cutting cycle and the display will show the message “T WRENCH INTO HOLDER”.

- **Laser warning**

Regulations require that warning labels in the language to be used be attached to the laser reader, as shown in fig. 15, page 14.

- **Cutter motor protection**

The cutter motor is protected against overheating by a cut-out switch (located inside the motor) that will automatically stop the motor if it reaches a certain temperature. Should the switch activate:

- 1) turn the machine off and disconnect the power supply cable.
- 2) contact Silca's Technical Assistance Dept.

### 1.3 MAIN WORKING PARTS

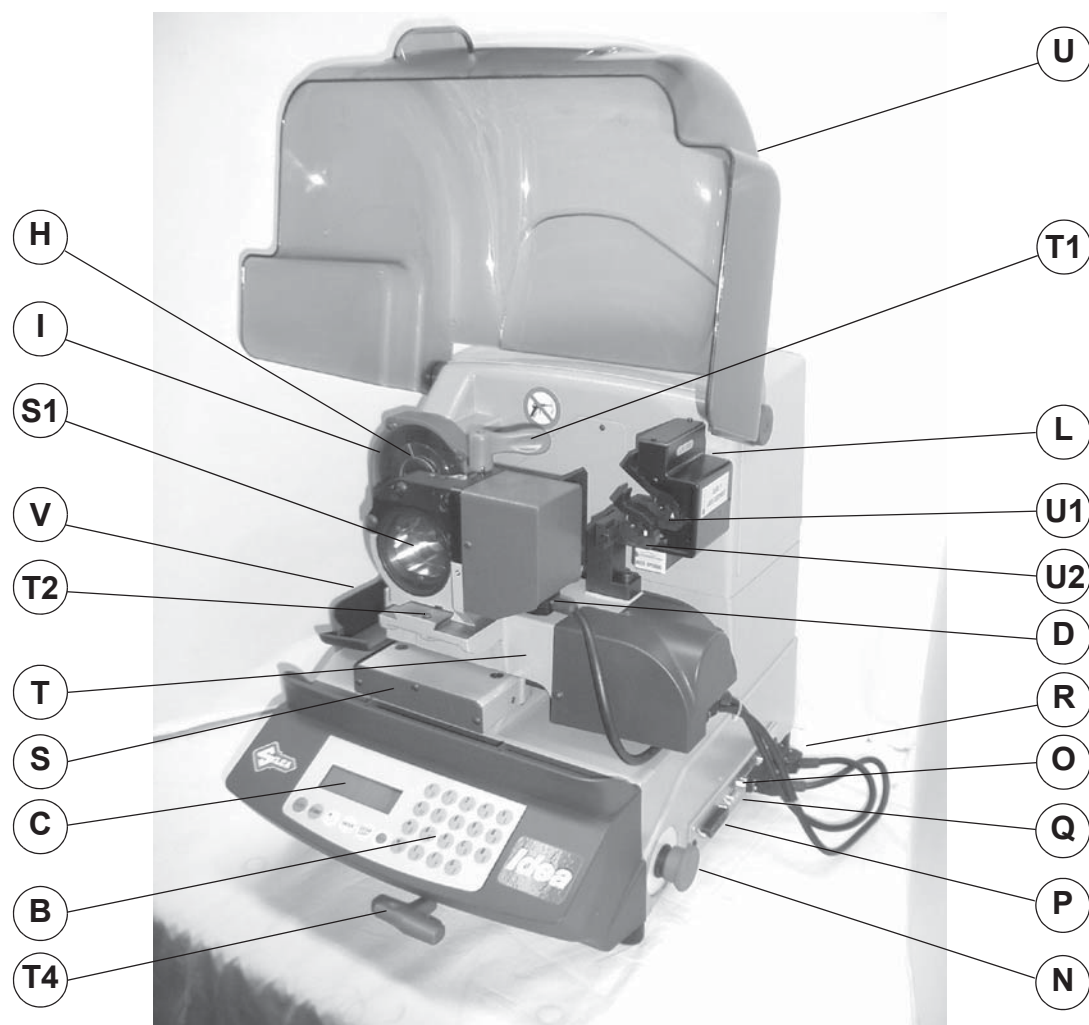


Fig. 10

- A - Master switch
- B - Keyboard
- C - Display
- D - Connector for revolving clamp
- H - Cutter
- I - Cutter shield
- L - Optical reader
- N - Emergency button
- O - 3rd axis
- P - IN/OUT port
- Q - Serial port
- R - Y axis connector
- S - X axis carriage
- S1 - Rotating clamp
- T - Y axis carriage
- T1 - Rotating clamp locking handle
- T2 - Rotating clamp removal screw
- T4 - 'T' wrench
- U - Protective shield
- U1 - Fixed clamp (clamp A)
- U2 - Mobile clamp (clamp B)
- V - Metal chippings tray



Fig. 11

## 1.4 TECHNICAL DATA

**Electricity supply:**

230V-50Hz

**Maximum absorbed power:**

230V: 2 Amp. 250 Watt

**Cutter motor:**

single phase and speed

**Cutter:**

hard metal carbide Ø 100 mm x 1,25 mm

**Tool speed:**

50Hz: 1150 rpm (+/- 10%)

**Movement:**

on 2 axes with ball screws activated by step motors, on rectified roller guides.  
Possibility to add a 3rd axis to activate the optional tilting and rotating clamps.

**Clamp:**

revolving

**Runs:**

X axis: 37 mm      Y axis: 32 mm

**Dimensions and types of keys:**

The machine is designed for cutting keys with the minimum/maximum dimensions described on page 2, page 3 and page 4.

**Dimensions:**

width: 500 mm      depth: 500 mm      height: 420 mm (with raised shield 650 mm)

**Mass:**



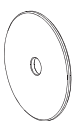

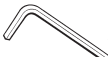
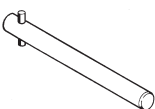





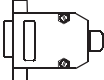

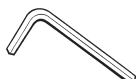
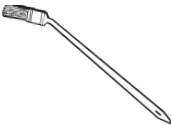


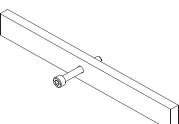


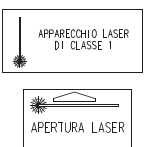
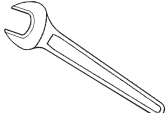
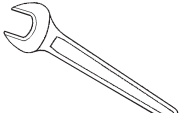




45 kg

**Noise level:**

sound pressure  $L_p(A) = 81,5 \text{ dB}(A)$  - steel keys /  $75,5 \text{ dB}(A)$  - brass keys

## 1.5 ACCESSORIES PROVIDED

IDEA comes with a set of accessories for its operation and maintenance (tools, hex wrenches, fuses) supplied in a special tool kit comprising:

tool kit 	1,5 mm allen key D302434ZZ 	Z13 template (regulating disk) D416657BA 
Cutter release rod D400754BA 	2 mm allen key D300221ZZ 	Laser reading template caliper (Z14) 
2 Amp fuse - delayed D312423ZZ 	2,5 mm allen key D300222ZZ 	Z12 template (regulating block) D426037BA 
4 Amp fuse - delayed D308726ZZ 	3 mm allen key D300223ZZ 	Z4 serial test connector D416661ZZ 
6,3 Amp fuse - delayed D310652ZZ 	4 mm allen key D300224ZZ 	Slanted brush D306935ZZ 
10 Amp fuse - delayed D316568ZZ 	5 mm allen key D300225ZZ 	Belt tension plate D416552BA D202443ZZ 
4 Amp fuse - rapid D301185ZZ 	6 mm allen key D300226ZZ 	laser warning labels D416816XA D416817XA 
10 mm spanner D300308ZZ 	13 mm spanner D302788ZZ 	adapter E2 (centering pin for female keys) 
centering pin for female keys: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Ø 4,5 mm for key stem 4mm : 5mm</p> </div> <div style="text-align: center;">  <p>Ø 5,5 mm for key stem 5mm : 6mm</p> </div> <div style="text-align: center;">  <p>Ø 6,5 mm for key stem 6mm : 7mm</p> </div> </div>		

## 2 TRANSPORT

**ATTENTION:** *the key-cutting machine is easily transported and is not dangerous to handle. The packed machine should be carried by at least two people.*

### 2.1 PACKING

The packing for IDEA is designed to ensure safe transportation and to protect the machine and all its parts. It comprises a pallet base (b) to which the machine is attached, and a cardboard box as a cover (a). The machine is fixed to the base of the pallet with screwed down brackets that hold it firm into place. This prevents the machine and its protective shield from any damage. The closed packing is held in place by two straps which hold the cardboard box firmly on the pallet. Symbols are printed on the outside of the cardboard box to give instructions and warnings for transportation.

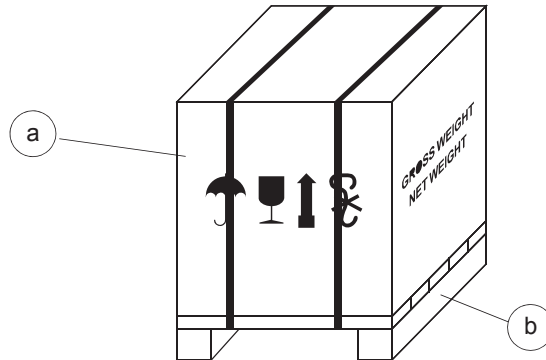


Fig. 12



Keep dry



Handle with care



This side up



Use no hooks

To prevent any damage to the machine it is advisable to save and use the brackets provided for future transportation.

### 2.2 UNPACKING

To remove the machine from the packing box:

- 1) cut the straps with scissors and remove
- 2) raise the top part of the cardboard box
- 3) loosen the screws, both on the front and back brackets that hold the machine to the pallet.
- 4) use the special spanner (provided in the tool kit), to loosen the nuts on the machine's feet.
- 5) remove the metal brackets and re-tighten the nuts on the feet.
- 6) check the contents in the box, that should comprise with the following:
  - 1IDEA key-cutting machine
  - 1set of documents, including: an operating manual, a spare parts list and a guarantee
  - 1power supply cable
  - 1tool kit

**NOTE:** *we strongly recommend you keep the packing intact for future transportation.*

## 2.3 MACHINE HANDLING

When the IDEA has been unpacked, place it directly on its workbench; this operation should be carried out by at least two people.

Take care to lift the machine firmly holding the base, and no other part.

**ATTENTION:** *never lift the machine by holding the keyboard stand (fig. 13).*



Fig. 13



### 3 MACHINE INSTALLATION AND PREPARATION

The key-cutting machine can be installed by the purchaser and does not require any special skills. It is supplied ready for use and does not need any special set up. However, the operator may have to control a few things before operating the machine.

#### 3.1 CHECKING FOR DAMAGE

IDEA is solid and compact and will not normally damage if transport, unpacking and installation have all been carried out according to the instructions in this manual. However, it is always advisable to check that the machine has not suffered any damage.

#### 3.2 ENVIRONMENTAL CONDITIONS

To ensure that the best use is made of the key-cutting machine, it is important to place it in a well-aired area which is not too damp.

The ideal conditions for the machine are:

temperature between 10°C and 40°C; relative humidity: approx. 60%.

#### 3.3 POSITIONING AND INSTALLATION

- 1) Place the machine on a horizontal surface, solid enough to support the weight of 40 Kg.
  - to work with ease, we suggest that the workbench be approximately the height of the operator's hip.
  - it is important to leave clearance of at least 30 cm behind the machine and on each side to ensure proper ventilation.
- 2) Ensure that the machine's voltage is the same as that of the mains power supply, which must be properly earthed and provided with a differential switch.
- 3) Connect the power supply cable to the power supply socket.

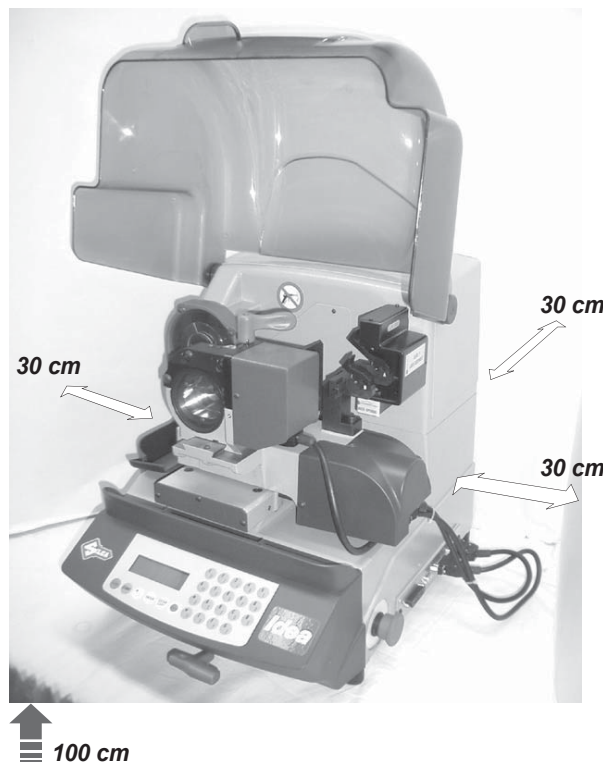


Fig. 14

#### 3.4 DESCRIPTION OF WORK STATION

The machine needs only one operator, who has the following controls at his/her disposal (fig. 10, page 8):

- master switch placed on the back of the machine
- key-positioning clamp
- keyboard
- display
- emergency button

### 3.5 GRAPHICS

- The Plexiglass protective shield carries an adhesive warning label (fig. 15). This label must never be removed.
- Two laser warning labels must be attached to the optical reader (fig. 15).



Do not use compressed air  
for cleaning



Laser warning labels

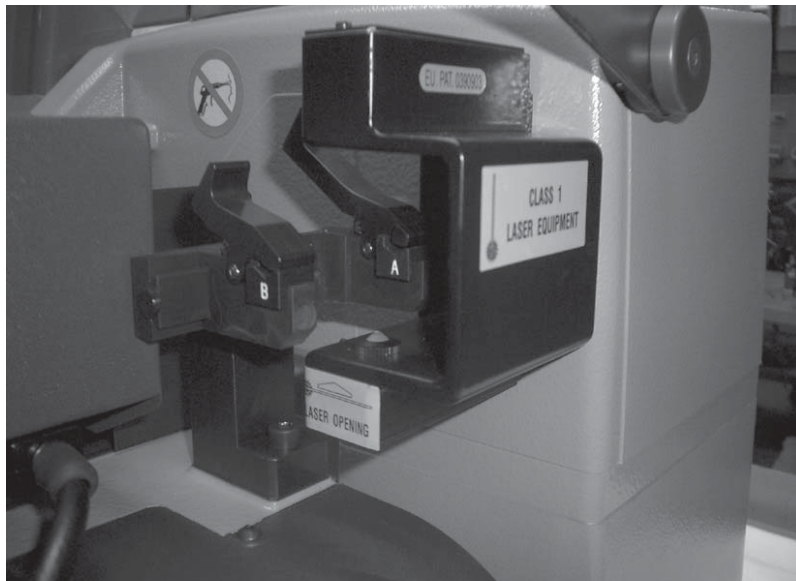


Fig. 15


## 4 “SET UP” AND USE OF THE MACHINE



### 4.1 KEYBOARD AND FUNCTIONS

The machine's keyboard has 19 alphanumeric and 6 function keys.

The alphanumeric keys are used for entering the data card number and the cutting data (numbers and/or letters) according to the code on the card in use.

Each of the 19 alphanumeric keys contains two characters: the main character (white) which is directly active, and an alternate character (red), which can be activated by simultaneously pressing the SHIFT key.

E.g.:  pressed directly produces: 1

 +  Pressed simultaneously produce: H

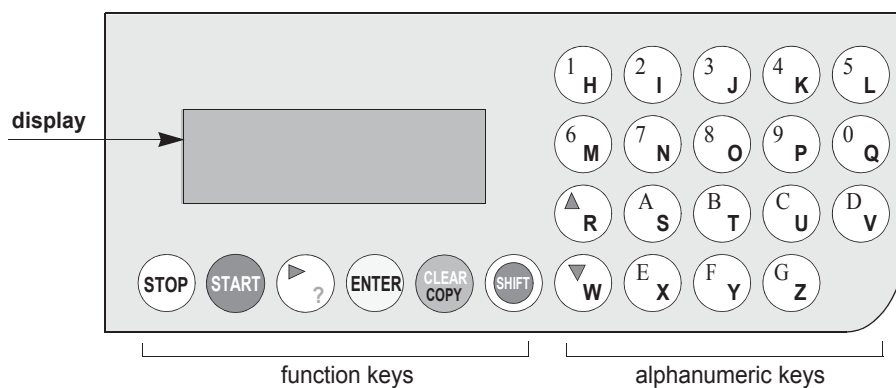


Fig. 16

#### FUNCTION KEYS



Stop button, particularly when the machine is in motion.  
Stops the function in progress at any time in the operation.



Starts the machine's operations (only with the shield in its closed position).



Activation of various functions in the menu.



CLEAR: deletes numerical characters.



Combination of SHIFT & CLEAR/COPY enables you to automatically switch to the (0) "Copy from original" function from any menu in the Idea internal program.



Pressed in combination with all the keys of the same colour to enter the number or letter available.

#### REGULATING THE DISPLAY

It is possible to modify the angle of vision on the machine's display by following the instructions below:

- to incline the angle of the display towards the bottom you must press the ▼ key and then press the ▲ key, simultaneously keeping them both pressed ▼▲ up until you reach the desired visualization.
- to incline the visualization of the display towards the top you must press the ▲ key and then press the ▼ key, simultaneously keeping them both pressed ▲▼ up until you reach the desired angle.

## 4.2 USE OF THE CLAMP

The rotating clamp (S1) (fig. 17) is the fundamental tool of IDEA. It has various functions and constitutes the third working axis (rotation) controlled by the machine. The rotating clamp is housed in a mobile support which runs along the X axis (spaces) and is anchored to the carriage below it by means of a dovetail guide; this allows the operator to position the clamp at any point along the key stem, ensuring the best grip on the stem.

### LOCKING

The rotating clamp is locked in position by means of the handle (T1) (fig. 17); the position along the X axis starts from the resting point for the jaws on the tailstock up to a rear mechanical stop which prevents the mobile support from coming off dovetail support.

### REMOVAL

Turn off the machine and pull out the plug. If it is necessary to remove the rotating clamp from the guide (for cleaning, etc.) turn the knob (T1) to release the underlying mechanical stop. Loosen the screw (T2) (fig. 10, page 8) and pull out the rotating clamp.

After replacing the rotating clamp into the guide, turn the knob (T1) to activate the stop. Tighten the screw (T2). Before removing the clamp, remember to disconnect the coupling for the rotating clamp connector extension (B1) from the "Y axis carriage", then to connect it again when the clamp has been replaced.

### GRIPPERS

The grippers (G1) are opened and closed by means of the countersunk hexagonal screw (V1), activated by the "T" wrench (T4) housed on the machine.

The grippers (G1) ensure that the key stem is centred on its axis within the set dimensions (min.3.6 mm, max.7 mm); the mobile jaws adapt to the diameter of both straight and conical stems. The universal tailstock support (K1) is designed and set to align the rotating clamp along the axis of the key stem parallel to the movement of the carriage X (spaces), so that it remains flat under the cutter; this ensures perfect concentricity between the axis and the key stem with any radial position.

### FUNCTIONS

The rotating clamp provides rotation for the keyblank; this serves two main purposes:

- 1) to provide the cutting radius concentric to the axis of the key stem during the cutting operation, with a tolerance of  $\pm 30^\circ$ .
- 2) to turn double bit keys  $180^\circ$ . By means of a PC function, it also provides interpolation of the movements between the Y axis (depth) and the rotation axis B, enabling "radial cuts with set measurements".

### INSERTING THE KEY

The rotating clamp makes it possible to insert keys from either the front or the back, according to the length of the key.

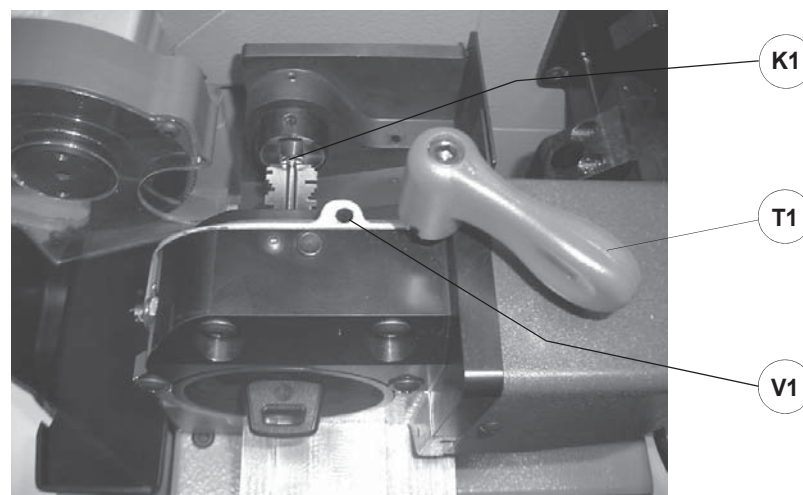


Fig. 17

### 4.3 CUTTING BY ELECTRIC CONTACT

The IDEA key-cutting machine is equipped with a low voltage electrical contact device which permits the cutter to individualize the key blank as it approaches the cutter during the cutting phase. Electrical contact is guaranteed for keys in steel, brass, silver nickel, Zamak or iron (with or without nickel-plating).

#### **IMPROPER USE OF ELECTRIC CONTACT**

It is not permitted to cut anodized keys, plastic keys or any keys with materials that do not have electrical conductivity by means of electric contact.

### 4.4 CUTTER

The majority of keys utilize the standard cutter for code cutting. Only in certain cases some special keys with particular type cuts require different cutters.

### 4.5 CHANGING THE CUTTER

- 1) raise the protective shield.
- 2) remove the cutter protective shield by loosening the screw (i2).
- 3) slide the cutter release rod (X) into the hole located on the left side of the machines cutter shaft chassis (fig. 18).
- 4) loosen the cutter locking nut (turning it clockwise) with the allen wrench (X1) provided with the machine.

**ATTENTION: the thread is left-handed.**

- 5) replace the cutter, then tighten the nut (turning it counter-clockwise) and remove the rod from its hole.
- 6) place the cutters protective shield (i) back into position securing it with the screws (i2).

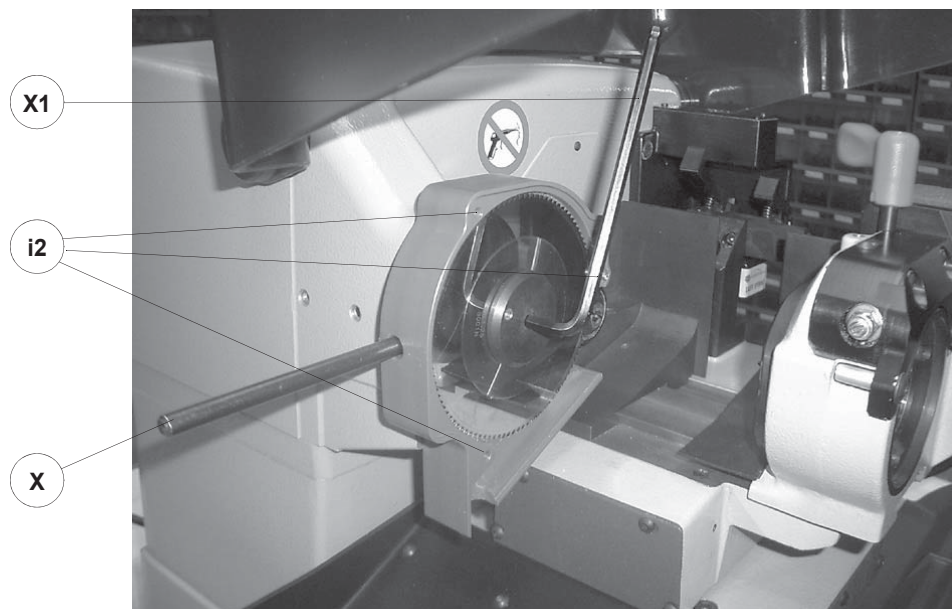


Fig. 18

**ATTENTION: when replacing a worn cutter with a new one or with a re-sharpened cutter consult ch. 5.20 "Gauging", page 73.**

## 5 USER'S GUIDE

### INTRODUCTION

The Users' Guide provided below explains how to use the IDEA key-cutting machine without a Personal Computer.

All the operations are explained step by step so that the machine can be used in the manual mode.

The personal computer programs available that can be connected to the key-cutting machine are used to transmit data for the cutting and decoding of keys.

Personal computer programs eliminate the need to carry out certain functions manually and skip some of the screens in the User's Guide once the data have been transmitted.

When IDEA is used with a Personal Computer, the User's Guide does not change its viewing logic, except for the screens that are not required.

### 5.1 SYMBOL AND TERMINOLOGY

For the sake of clarity, below is a glossary of the commonly used symbols and terms connected with keys or key-cutting machines.

These symbols and terms will be quoted in the text with a reference to this page, but it will facilitate your reading if you go through them first.

**Cutter: 1.25 (0.492)** indicates the thickness in mm (or inches) of the currently selected cutter

**B1** = indicates the left-hand bit of the key

**B2** = indicates the right-hand bit of the key

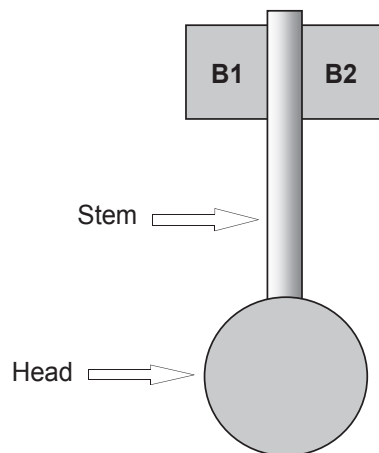


Fig. 19

**S1** = initials to identify a key clamp (rotating)

**S100** = initials to identify a key clamp (reader)

**K1** = initials to identify a tailstock for gripping the key stem from the front

**E1** = initials to identify a special adapter used for fitting certain types of keys (fig. 3)

**STOP 0**: reference for fitting the key into the clamp or tailstock

- Y1 = +00 DEPTH OF BIT 1

- Y2 = +00 DEPTH OF BIT 2

**Silca Serial Number (SSN)** = serial number assigned by Silca to each system/lock. They are listed in Silca key catalogues or Silca software programs.

**Make** = is the make of the lock related to the key to be cut.

**Brass/Steel** = indicates the material of the key to be cut: to use the key-cutting machine properly, always check that the wording corresponds to the material of the key.

### 5.2 INITIAL OPERATIONS

After positioning the key-cutting machine on the worktop and connecting the power supply wire to the machine, proceed as follows:

- 1) make sure that the emergency push button is off.
- 2) turn on the machine by means of the switch on the back.
- 3) to check or edit the working parameters on the machine, go to the "Options [6]" menu (page 106).

When the machine is turned on, for a few seconds the display shows the internal software version and the machine model:

IDEA Version x.x.xxx Vers DB xx.xx
--

**Version** = this refers to the version of internal software that runs the machine functions. The figure changes at every upgrade.

**Vers DB** = this refers to the version of the data relating to the Systems/Locks entered. You may ask SILCA to upgrade your machine database with any of the new systems on the market. The figure changes at every upgrade.

The WinTransfer program (see ch. 7.13, page 133) or the Silca Key Programs can be used to update the machine program and data by means of a PC and serial port.

The first operation is to set the language for machine messages:

Select language = 2 1: Italiano      2: English 3: Deutsch      4: Français 5: Español
---

The main menu for the machine program then appears.

#### **OPERATING KEYS:**

Use the arrow keys [Up/Down] to position the pointer and choose the option by pressing the [ENTER] key, or enter directly the key relating to the option number.

The symbol >> indicates the other items in the menu that can be accessed with the arrow key [Down].

0 - Copy from original 1 - Decode and Copy 2 - Insert the Cuts 3 - Queue from PC 4 - Calibrations 5 - Maintenance 6 - Options
---



### 5.3 [0] COPY FROM ORIGINAL

#### READING PROCESS

The laser reader is used to find the measurements and cuts on original keys so that they can be copied onto the keyblanks.

**ATTENTION:** *before undergoing laser reading, the original key must always be cleaned to remove any accumulated impurities at the base of the negative teeth or frazed parts on the key profile (use the teflon brush);*

- *ensure that the positive teeth are not so bent as to obstruct the entry of the beam into the adjacent spaces;*
- *with all keys, ensure that the stem is not bent between the tip held by the fixed clamp (A) and the part of the stem held in the mobile clamp (B);*
- *position the key so that the transversal axis of the bit/s is as horizontal as possible.*

The reading process is started when the program has been selected from the display and the key has been placed in position on the clamps according to the instructions in the special diagrams for each type of key (for example: fig. 28, fig. 30, fig. 32, ...).

Excursion during the reading process is limited by the lower jaw of the mobile clamp (B) and the transversal run is determined both by the type of key and the size of the bit.

The laser reader is programmed to circumscribe the bit/s on the key starting from the contact on the lower jaw of the mobile clamp (B), to read the diameter of the part of the stem between the mobile clamp (B) and the bit and to recognise the type of key and its correct positioning according to the selected program. It reads the first side of the bit following the cuts up to a limit of 0.5 mm from Stop 0 (up against on the fixed clamp A) then goes on the second side to follow the second bit, or if the key has only one bit, the stem of the key.

#### CUTTING PROCESS

- Cutting begins on the bit on the left-hand side of the stem starting from the tip and going towards the head.
- The second bit, the one on the right, is cut in reverse, i.e. from the head to the tip.

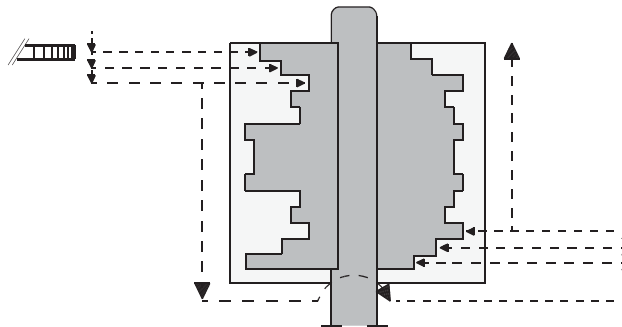


Fig. 20

- The cutting path is automatically calculated by the program on the basis of the reading from the original key. The thicknesses of all the teeth (positive and negative) are compared with the thickness of the cutting tool stored in the memory (can be read on the machine display by means of the "F2" function). If the thickness of any of the teeth is less than that of the cutting tool (standard cutting tool, 1.25 mm), the program will indicate the maximum thickness needed to make an identical copy of the key.

If all the teeth are thicker than the cutting tool, the program will indicate the difference and the number of times the cutting tool needs to pass to reproduce the cuts correctly.

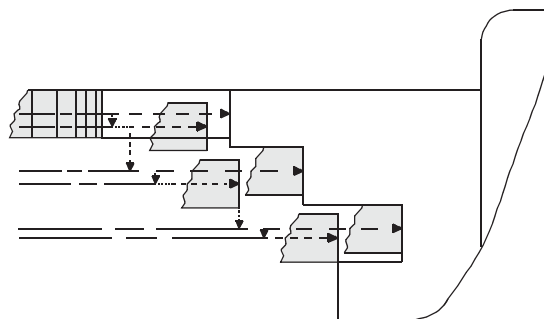


Fig. 21



- The cutting tool is brought into contact with the bit at reduced speed to determine the size, then the tool withdraws to the safety distance before beginning the next cut.
- The purpose of the entire procedure is to reduce the backwards and forwards movement of the cutting tool, limiting its excursion to within a new safety measurement of 2 mm beyond the edge of the bit, thereby accelerating the cutting process.

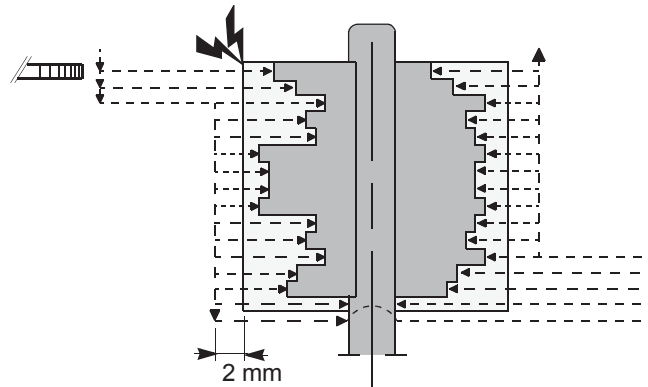


Fig. 22

### CUTTING

- On taking the key up to the cutting tool, the rotating clamp imposes an anticlockwise angle of  $-30^\circ$  to the transversal axis of the bit, thus facilitating cutting by providing a single direction ( $+60^\circ$  clockwise) for the cutting radius after the depth for the tooth being cut has been reached.

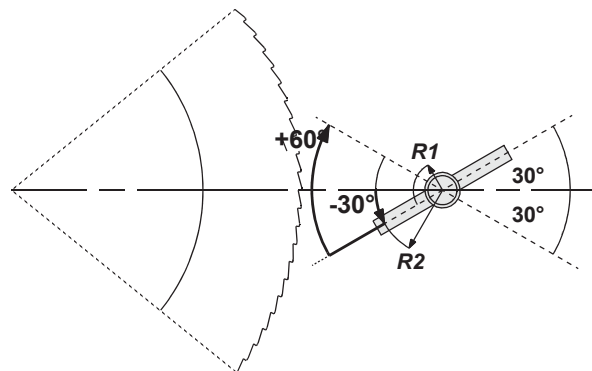


Fig. 23

- At the end of the cutting operation on the left-hand bit, the cutting tool trims the bit up to the stem (diameter read from the original key) thereby rectifying the diameter of the stem as the key turns simultaneously, together with the removal of any portion of bit which exceeds the length of the original.

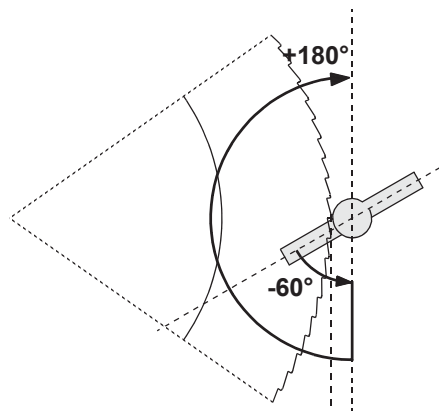


Fig. 24

- With square stemmed keys the program applies a special bit trimming process which does not remove the edges of the stem. The key is positioned on the horizontal axis at a distance of 2 mm from the end of the stem; the cutting tool then enters tangentially on the vertical side of the stem so that any portion of the bit which exceeds the original measurement can be removed.

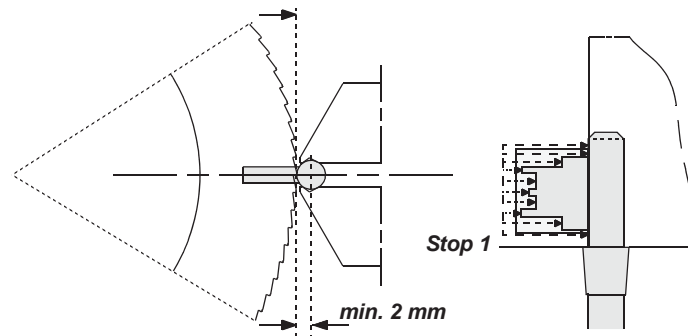


Fig. 25

- The speed ratio is selected from a scale of diameters sub-divided proportionally between a minimum diameter of 3.6 mm and a maximum diameter of 7 mm; in effect, the thicker the key, the slower the advancing speed of the cutting tool.
- The advancing speed of the tool over the bit (not to be confused with the speed of cutting, or tool operation, which depends on whether the material is brass or steel) is automatically adopted by the program according to the diameter of the stem read from the original key.

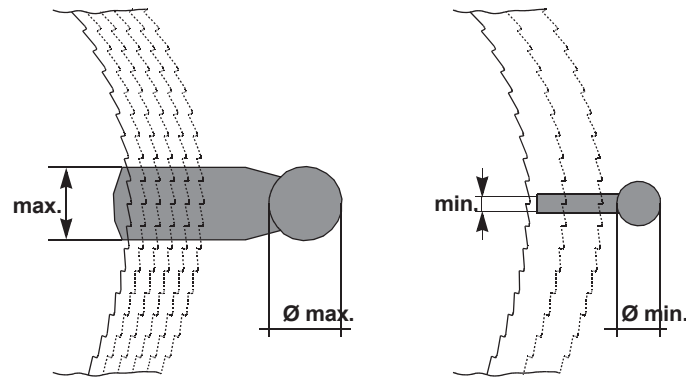


Fig. 26

It is now very important to distinguish the type of key to be copied.

SELECT TYPE OF KEY		
0 - Bit stop male	3 - Pump	7 - Rear stop
1 - Bit stop female	4 - Square-square tip	8 - Rear stop french
2 - Shoulder stop	5 - Square-round tip	9 - Small bit
	6 - Square stepped tip	10 - Special bit female

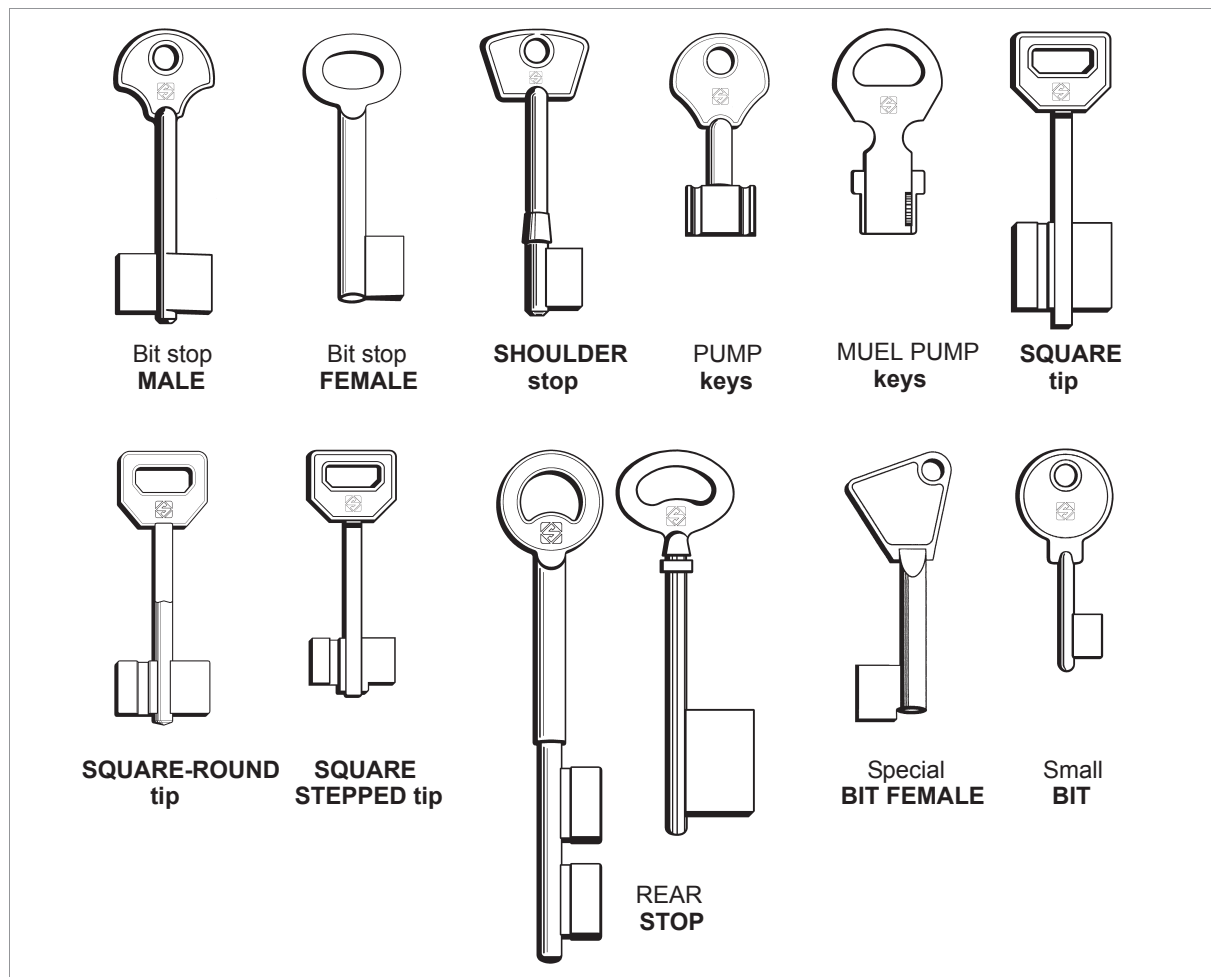


Fig. 27

Select the operation to be carried out on the selected key:

- |  |
|--|
| 1 - Reading + Copying<br>2 - Cutting only<br>3 - Reading only<br>4 - Post-Reading adj. |
|--|

- 1) Reading + Cutting: the key and cutting data are read **without interruption**.
- 2) Cutting only: the previously read key is cut.
- 3) Reading only: the key is read; **in this way the cuts read can be edited before cutting the key**.
- 4) Editing of key read: the original key read can be edited in order to adjust any defects or broken parts (see ch. 5.15, page 61).

## 5.4 COPY FROM ORIGINAL FOR FRONT STOP - MALE

<p>KEY READING</p> <p>Original on right</p> <p>Clamp: S100 A-B Stop: 0</p> <p>[START]</p>
---

**Clamp: S100 A-B** = indicates the clamp (**S100**) into which the key must be fitted, and which jaw to use.  
**Stop 0** = reference or positioning point on the key reading clamp.

### 5.4.1 Reading keys with front stop (double bit, single bit - male)

- 1) open the fixed clamp (A) and the mobile clamp (B) by exerting pressure on the jaw lever.
- 2) fit the key into the special V-shaped groove (axis X1) taking the bit all the way into the fixed clamp (A).

**ATTENTION:** *position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.*

- 3) release the jaw lever.
- 4) place the mobile clamp (B) in the ideal position for the stem between the bit and head making sure that between the bit and internal side of the mobile clamp (B) there is a distance of min. 3 mm and max. 10 mm.
- 5) when the reading process is started, the carriage takes the key into contact with the laser beam along the path and in the direction indicated by the broken line.
- 6) at the end of the cycle see the message on the display in order to continue (see ch.5.4.2).

Reading in progress...
------------------------

<p>Data processing in progress Please wait...</p>
---

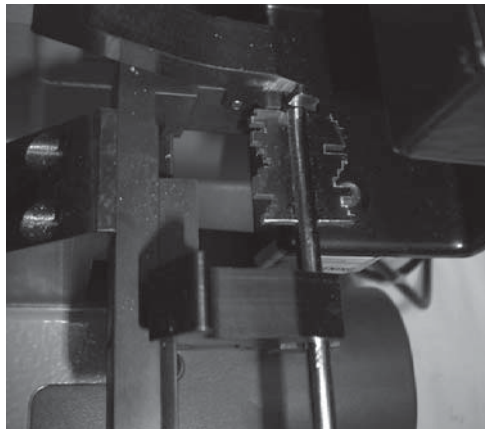


Fig. 28

### 5.4.2 Cutting keys with front stop (double bit, single bit - male)

Left blank	Brass
Clamp: S1-K1	Stop:0
Cutt.: 1.25	
Pcs. = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or positioning point on the key cutting clamp.

**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness)

**Brass/Steel** = material of the key (press SHIFT+ ? to change material)

**ATTENTION: always check that the wording corresponds to the material of the key.**

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with front stop requires the use of the rotating clamp (S1), the 'K1' tailstock support and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key.
- 2) Orient the standard tailstock (K1) for male keys in the special seat on the support, using the screw (V2) to direct it upwards (fig. 29).
- 3) Take the T wrench (T4) from its seat and open the rotating clamp jaws by turning the sunk hex. screw (V1); at the end of the operation leave the T wrench in the screw (V1).
- 4) Fit the key blank into the rotating clamp (S1) from the front, placing the stem in position on the jaw groove, then place the key tip into the tailstock (K1).
- 5) Close the mobile clamp jaws slightly, using the T wrench already in the screw (V1), without gripping the key stem; move the rotating clamp (G) towards the tailstock, keeping a minimum safety distance of 10 mm between the rotating clamp jaws and the rear limit of the bit. Secure the rotating clamp in position by means of knob (T1).
- 6) Hold the key head in the left hand and align crosswise, making sure that the bits are all the way up against the grips on the tailstock (K1), at the same time close the grips round the key stem, using the T wrench (T4) already in place on the screw (V1).
- 7) Transfer the T wrench (T4) onto the screw (V2) of the tailstock and secure the tip of the key.
- 8) Replace the T wrench in its seat, lower the mobile safety shield and begin the process with START.

To remove the key after cutting, carry out the operations described, in reverse order.

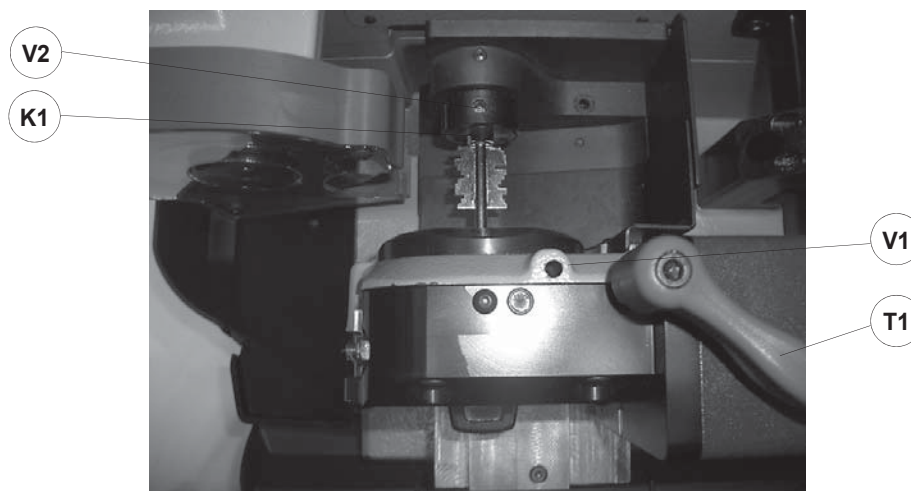


Fig. 29

Cutting in progress  
Copy: 1 of: 1

Copy: 1 of: 1  
finished  
More copies ?  
No=STOP Yes =ENTER

You can now press ENTER in order to make further copies of the previously read original key.

## 5.5 COPY FROM ORIGINAL FOR FRONT STOP - FEMALE

KEY READING  
Original on right  
Clamp: S100 A-B Stop: 0  
[START]

**Clamp: S100 A-B** = indicates the clamp (**S100**) into which the key must be fitted, and which jaw to use.  
**Stop 0** = reference or point for positioning the key on the reading clamp.

### 5.5.1 Reading keys with front stop (double bit, single bit - female)

- 1) Press on the grip lever of the fixed clamp (A) and fit the centring device (see table) so that it protrudes towards the mobile clamp (B). Release the grip lever.
- 2) Press on the grip lever on the mobile clamp (B) and fit the key so that the hole in the stem is up against the centring device. Release the grip lever.
- 3) Hold the key head with one hand and the end of the centring device with the other and push the key up against the stop 0 (A).
- 4) The ideal position for the mobile clamp (B) is when there is a distance of 3 mm min. and 15 mm max. between the bit and inner side of the mobile clamp (B) (see ch.5.5.2).

Reading in progress...

Data processing  
in progress  
Please wait...

Press START to proceed with cutting the key (see ch.5.5.2).

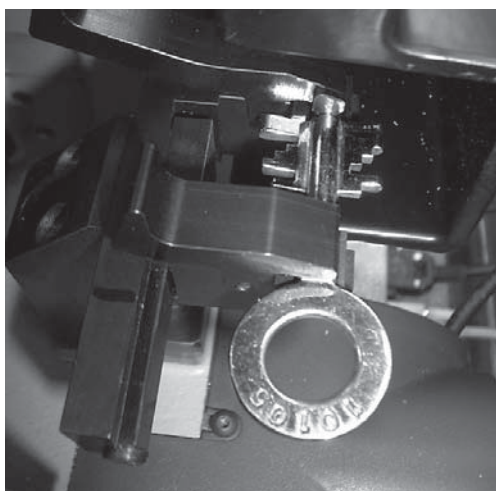



Fig. 30

CENTRING 	Ø STEM
Ø 4,5 mm	from Ø 4 mm to Ø 5 mm
Ø 5,5 mm	from Ø 5 mm to Ø 6 mm
Ø 6,5 mm	from Ø 6 mm to Ø 7 mm

**ATTENTION:** make sure that the bit is up against the stop 0 (A).

**ATTENTION:** position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.

- 5) start the reading process, which will take the reader along the path indicated by the broken line. At the end of the cycle see the message on the display in order to continue.

## 5.5.2 Cutting front stop keys (double bit, single bit - female)

Left blank	Brass
Clamp: S1-K1	Stop:0
Cutt.: 1.25	Adap.: E2
Pcs. = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or point for positioning the key on the cutting clamp.

**Cutter: 1.25** = thickness of the currently selected cutter (press SHIFT+ENTER to change thickness).

**Brass/Steel** = material of the key (press SHIFT+ ? to change material).

**Adapt: E2** = adapter for positioning the key (female) from the tip.

**ATTENTION:** always check that the wording corresponds to the material of the key.

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with front stop requires the use of the rotating clamp (S1), the 'K1' tailstock, the E2 adapter and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

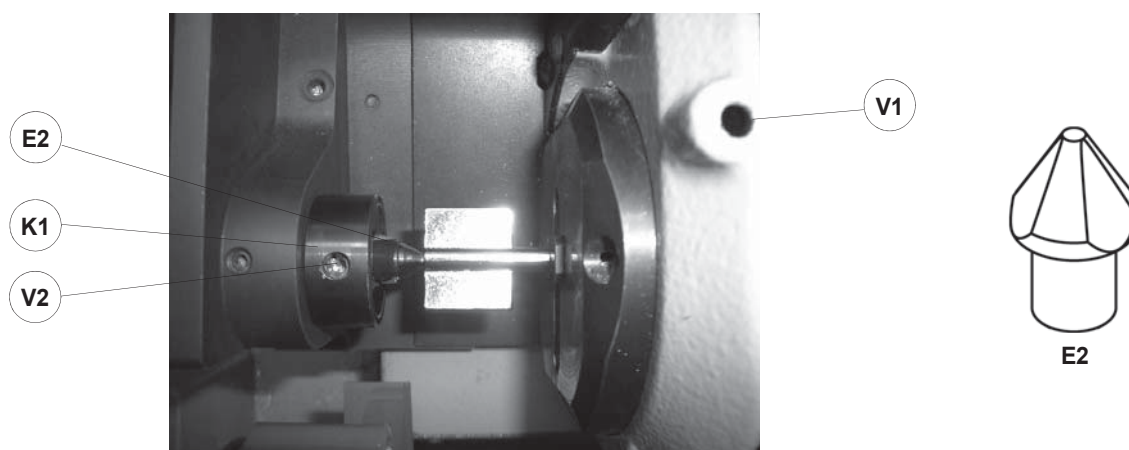


Fig. 31

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key.
- 2) Fit the adapter E2 into the tailstock K1 up against the mechanical stop (T).

**ATTENTION:** the adapter E2 must be properly fitted into its seat and pressed up against the stop point.

- 3) Take the T wrench (T4) from its seat and open the rotating clamp jaws by turning the sunk hex. screw (V1); at the end of the operation leave the T wrench in the screw (V1).
- 4) Fit the key blank into the front side of the rotating clamp (G) and position it on the groove in the jaws, then take the key forward until the adapter E2 goes into the hole in the stem.
- 5) Close the mobile clamp jaws slightly, using the T wrench already in the screw (V1), without gripping the key stem; move the rotating clamp (G) towards the tailstock, keeping a minimum safety distance of 10 mm between the rotating clamp jaws and the rear limit of the bit. Secure the rotating clamp in position by means of knob (T1).
- 6) Hold the key head in the left hand and align crosswise, making sure that the bit is all the way up against the adapter E2 on the tailstock (K1), then close the grips round the key stem, using the T wrench (T4) already in place on the screw (V1).
- 7) Transfer the T wrench (T4) onto the screw (V2) of the tailstock and secure the adapter E2.
- 8) Replace the T wrench in its seat, lower the mobile safety shield and begin the process with START.

To remove the key after cutting, carry out the operations described, in reverse order.

Cutting in progress  
Copy: 1 of: 1

Copy: 1 of: 1  
finished  
More copies ?  
No=STOP Yes=ENTER

You can now press ENTER in order to make further copies of the previously read original key.

## 5.6 COPY FROM ORIGINAL FOR CENTRE STOP

Original on right  
Clamp: S100 A-B Stop: 0  
[START]

**Clamp: S100 A-B=** indicates the clamp (**S100**) into which the key must be fitted, and which jaws to use.  
**Stop 0** = reference or point for positioning the key in the reading clamp.

### 5.6.1 Reading keys with centre stop (English type)

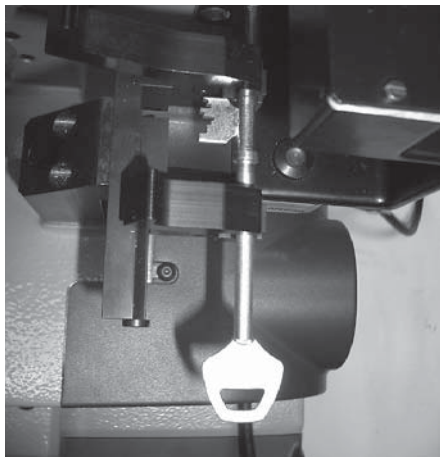


Fig. 32

- 1) Open the fixed clamp (A) and the mobile clamp (B) by pressing on the grip lever.
- 2) Fit the key into the special groove (axis X1) taking the bit up against the fixed clamp (A).

**ATTENTION:** *position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.*

- 3) Release the grip lever.
- 4) Place the mobile clamp (B) in position on the key stem at a minimum distance of 3 mm from the end of the collar.
- 5) When the reading process is started the carriage takes the key into contact with the laser beam along the path and in the direction indicated by the broken line.
- 6) At the end of the cycle see the message on the display in order to continue (see ch.5.6.2).



Reading in progress...

Data processing  
in progress  
Please wait...

Press START to proceed with cutting the key (see ch.5.6.2).

### 5.6.2 Cutting keys with centre stop (English type)

Left blank	Brass
Clamp: S1-K1	Stop:1
Cutt.: 1.25	Adap.: E1
Pcs. = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or point for positioning the key in the cutting clamp.

**Cutter: 1.25** = thickness of the currently selected cutter (press SHIFT+ENTER to change thickness).

**Adapt.: E1** = special adapter for keys with CENTRE STOP.

**Brass/Steel** = material of the key (press SHIFT+ ? to change material).

**ATTENTION:** *always check that the wording corresponds to the material of the key.*

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with centre stop requires the use of the E1 adapter and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) turning it anticlockwise until the rotating clamp (S1) can be drawn back and secured at the end of its external run (mechanical stop).
- 2) Take the T wrench (T4) from its seat and fit into the screw (V1), then loosen until the jaws are fully open. At the end of the operation do not remove the T wrench from the screw (V1).
- 3) Fit the key blank into the adapter E1, taking care that it is in the right position (fig. 33), then tighten the screw (V4).
- 4) Fit the adapter E1 with the key blank in the inner side of the rotating clamp (S1), take the adapter up against the face of the self-centring jaw and use the T wrench (T4) to slightly close the jaws on the rotating clamp.
- 5) Move the rotating clamp S1 so that the adapter E1 enters the tailstock K1.
- 6) Tighten the knob (T1).

Use the T wrench (T4) to tighten the screw (V1) first, then the screw (V2).

Replace the T wrench (T4) into its seat, lower the mobile safety shield and begin the process with START. To remove the key after cutting, carry out the same operations, in reverse order.

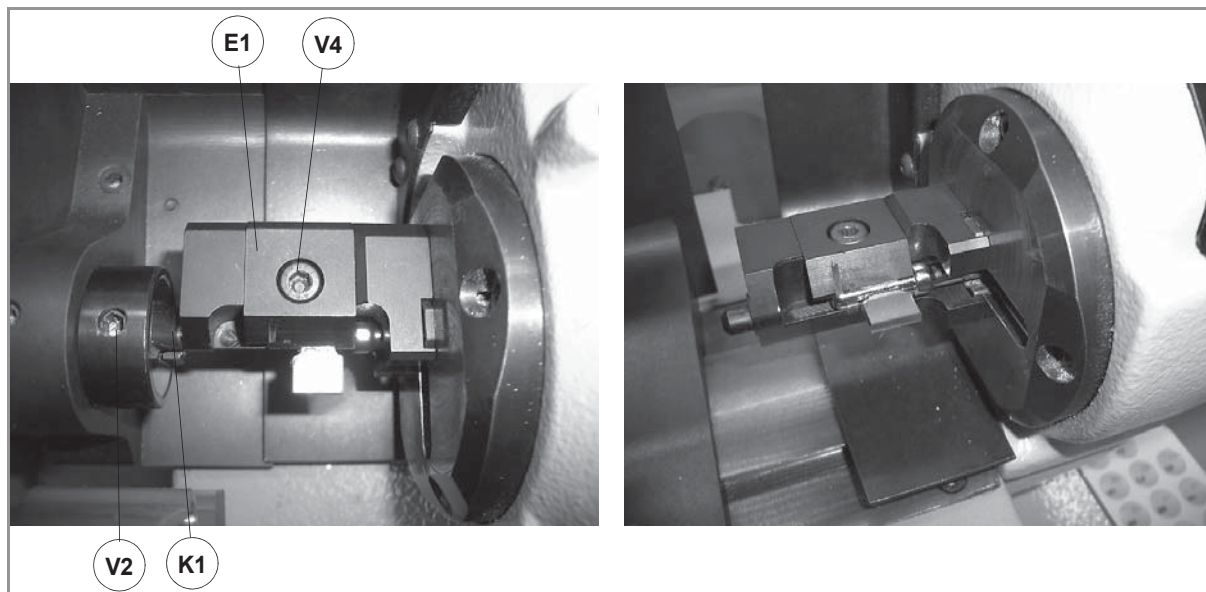


Fig. 33

Cutting in progress  
Copy: 1 of: 1

Copy: 1 of: 1 finished  
More copies ?  
No=STOP Yes=ENTER

You can now press ENTER in order to make further copies of the key.

## 5.7 FAS 309 PLASTIC STEM ONLY DECODE AND COPY

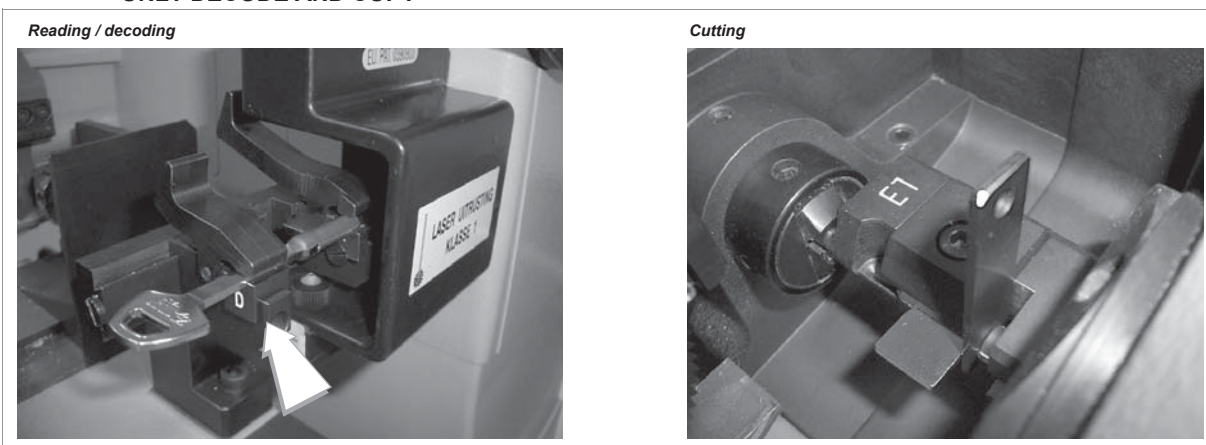


Fig. 34

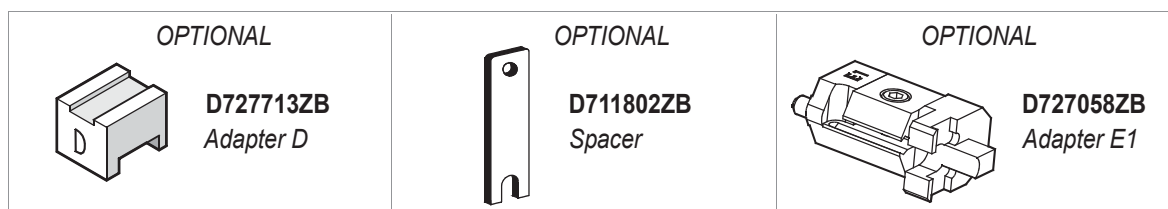


Fig. 35

## 5.8 ADAPTER FOR CUTTING CHUBB KEYS WITH SQUARE SECTION STEMS

The Chubb adapter set is required for the code-cutting of Chubb keys (CHUBB RKS) with square section stems (fig. 36). It comprises 2 identical adapters (A) for the optic reader clamp and the swivel clamp.

- 1) Fit adapter (A1) into the groove on the optic reader clamp, take it up against the stop (X1).
- 2) Place the key to be decoded in its place on the adapter, which must butt against the key rim (Y1).

**NOTE:** *place the key so that the bit is as horizontal as possible.*

- 3) Place the second adapter (A2) into the standard tailstock and tighten the grub screw (G) (fig. 36).
- 4) Place the key to be cut into its seat on the adapter, which must butt up against the key rim (Y2); take the rotating clamp up to the stem and secure the key.
- 5) Proceed with the cutting operation.

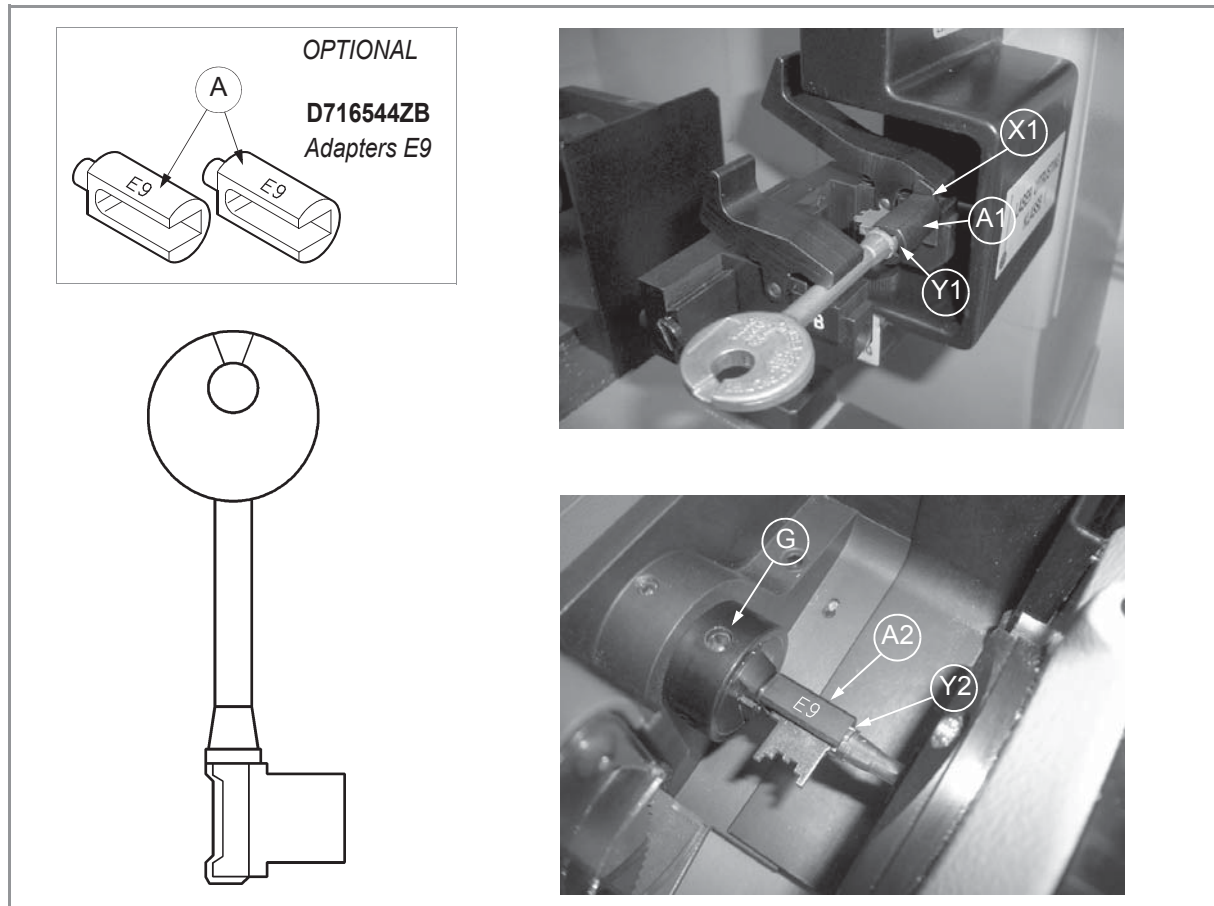


Fig. 36

## 5.9 PUMP KEYS

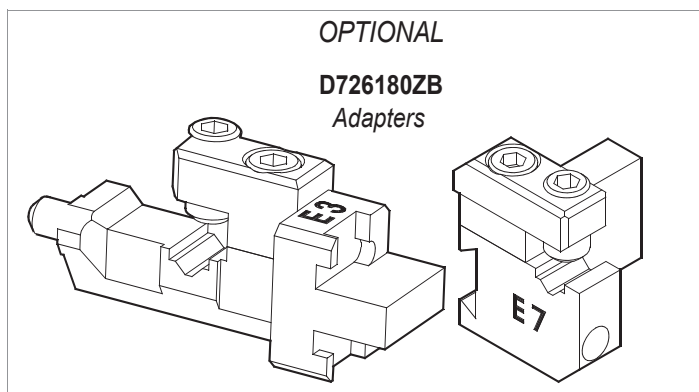
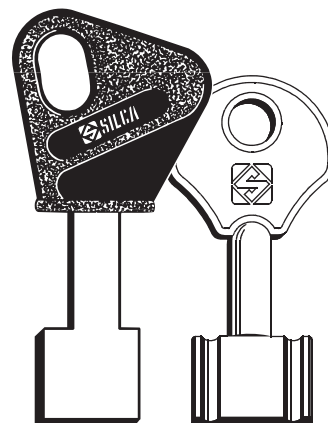


Fig. 37



### **E3**

Adapter for pump keys (E3 - ID), used for cutting (install between the rotating S1 and K1 tailstock).

### **E7**

Adapter for pump keys (E7 - ID), used for reading (install in the place of the S100 - B mobile clamp).

When the machine requires (indicates on display) adapter **E3** or **E7**, proceed in the way described in the following examples:

- It is very important to distinguish the type of key to be copied. Choose **option 3** - Pump.

SELECT TYPE OF KEY
0 - Bit stop male
1 - Bit stop female
2 - Shoulder stop
3 - Pump

- Choose **option 1** - Reading + Copy

1 - Reading + Copying
2 - Cutting only
3 - Reading only
4 - Post-reading adj.

### **READING PUMP KEYS**

KEY READING
Original on right
Clamp: S100 A Stop: 0
Adapt: E7 [START]

Operate as follows:

- 1) Loosen the screw (G) 1) on the S100 clamp.
- 2) Pull out the mobile clamp unit (B).
- 3) Fit the **E7** adapter into the S100 clamp, then tighten the screw (G).
- 4) Fit the original key into the **E7** adapter so that the key stem (rectangular or round) fits perfectly into its seat. The key head will protrude from the side marked E7, whereas the bit will fit inside the adapter, not in contact with the stop but at approx. 2-3 mm. (fig. 39). When this condition is reached, tighten the grub screw (C) to secure the key.
- 5) Push the **E7** adapter until the side (Y) is butting against the fixed part of the S100 - A clamp.
- 6) Press the START key to continue.
- 7) When the reading process starts the carriage will take the key into contact with the laser beam along an ideal path.

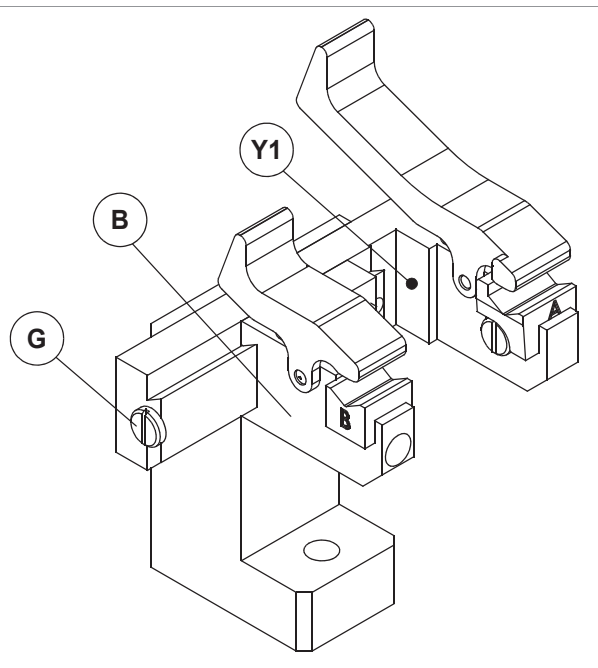


Fig. 38

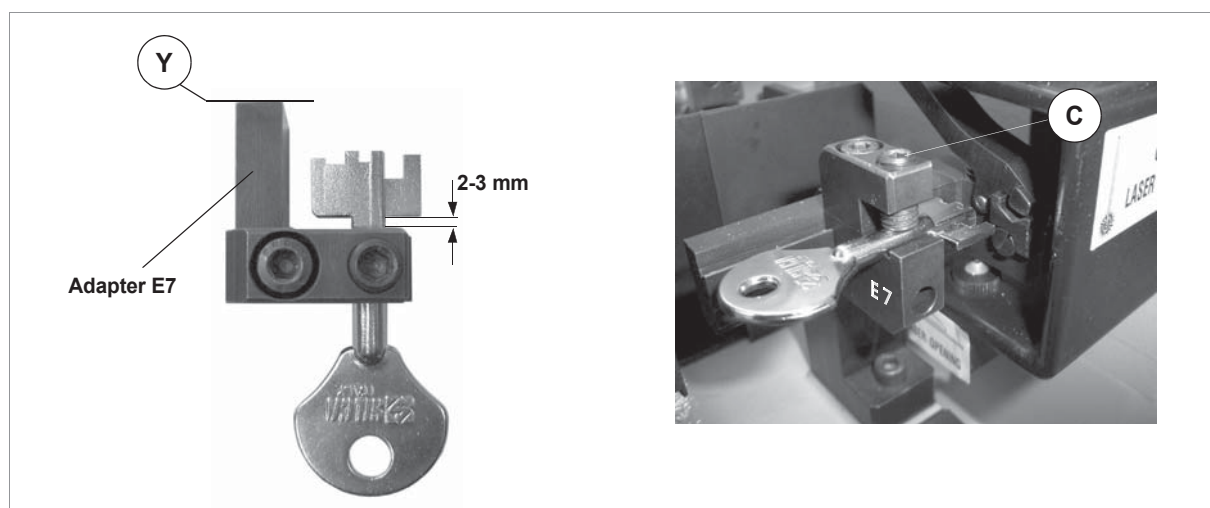


Fig. 39

- At the end of the cycle see the message on the display in order to continue.

Reading in progress...

Data processing  
in progress  
Please wait...

## CUTTING PUMP KEYS

Left blank	Brass
Clamp: S1-K1	Stop:3
Cutt.: 1.25	Adapt.: <b>E3</b>
Pcs = 1/1	[START]

Operate as follows:

**Clamp: S1 - K1** = indicates which clamp (S1) and tailstock (K1) to use for gripping the key.

**Stop 0** = reference or positioning point on the key cutting clamp.  
**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness).

**Adatt: E3** = special adapter for cutting PUMP keys.

**Brass/Steel** = material of the key (press SHIFT+? to change material).

**ATTENTION: always check that the wording corresponds to the material of the key.**

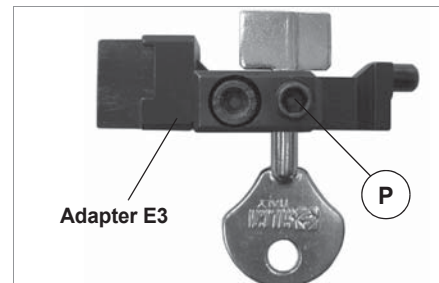


Fig. 40

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of pump keys requires the use of the **E3** adapter and the key reference on "Stop 3".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key).
  - 2) Take the 'T' wrench (T4) from its seat and fit into the screw (V1), then loosen until the jaws are fully open. At the end of the operation do not remove the 'T' wrench from the screw (fig. 41).
  - 3) Fit the key blank into the **E3** adapter, paying attention to its position (fig. ), then tighten the screw (P).
  - 4) Fit the **E3** adapter, with the key blank in the rotating clamp (S1) from the inside, take the adapter up to the side of the self-centring jaws and slightly close the grips on the rotating clamp with the 'T' wrench (T4).
  - 5) Move the rotating clamp S1 so that the adapter **E3** enters the tailstock K1.
  - 6) Tighten the knob (T1). Use the 'T' wrench (T4) to tighten the screw (V1) first, then the screw (V2) (fig. 42). Replace the T wrench (T4) into its seat, lower the mobile safety shield and begin the process with START.
- To remove the key at the end of the cutting process, carry out the same operations in reverse order.

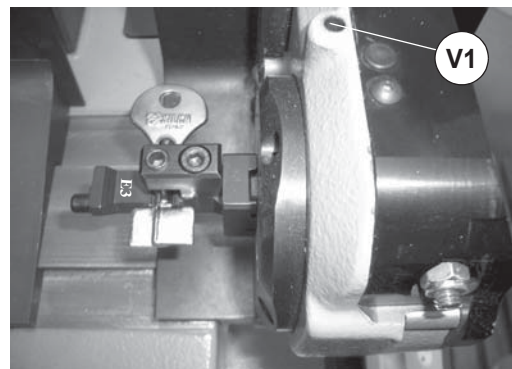


Fig. 41

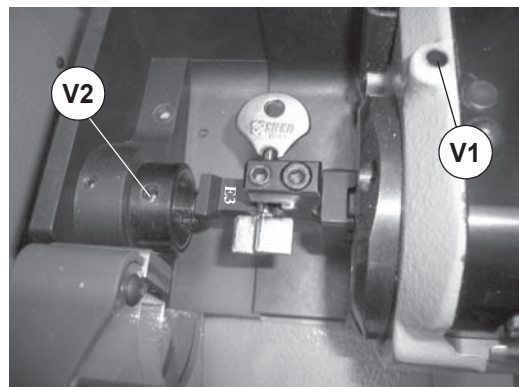


Fig. 42

Cutting in progress  
Copy: 1 of: 1

Copy: 1 of: 1 finished  
More copies ?  
No=STOP Yes=ENTER

- You can now press ENTER in order to make further copies of the key.
- Select **STOP** to quit.



## 5.10 MUEL PUMP KEYS

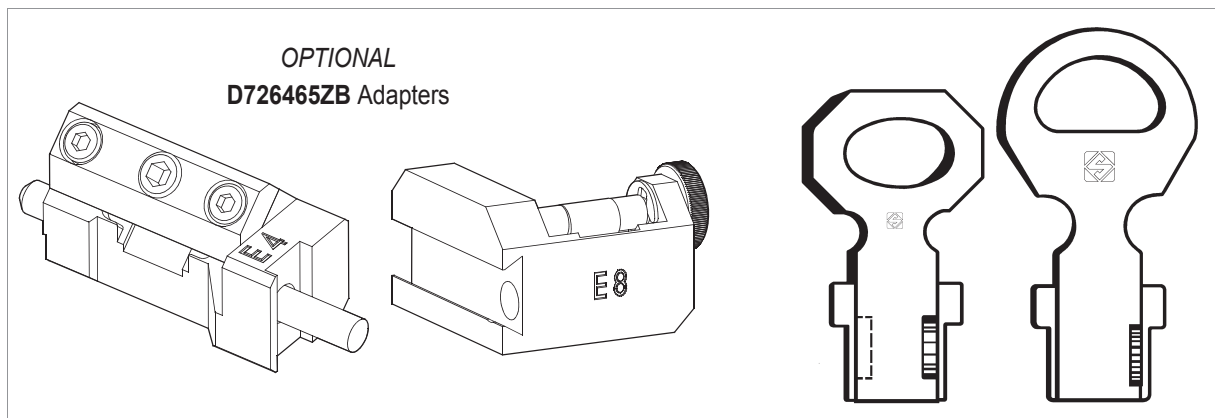


Fig. 43

THE SET COMPRISES:

### **E4**

Adapter for Muel pump keys (E4 - ID), used for cutting (install between the rotating S1 and K1 tailstock).

### **E8**

Adapter for Muel pump keys (E8 - ID), used for reading (install in the place of the S100 - B mobile clamp).

**Note:** operations allowed only when decoding using SN 328 / SN 329 / SN 352

When the machine requires (indicates on display) adapter **E4** or **E8**, proceed as in the example.

0 - Copy from original <b>1 - Decode and Copy</b> 2 - Insert the cuts 3 - Queue from PC
--

- Choose **option 1** - "Decode and Copy"
- Choose the SN required (SN328 / SN329 / SN352...) and proceed.

To read Muel keys, proceed as follow:

### **READING MUEL PUMP KEYS**

DECODE	SSN 328
Original on right	
Clamp: S100	Stop: 4
Adapt: <b>E8</b>	[START]

- 1) Loosen the screw (G) 1) on the S100 clamp.
- 2) Pull out the mobile clamp unit (B).
- 3) Fit the **E8** adapter into the S100 clamp, then tighten the screw (G).
- 4) Fit the original key into the adapter **E8**, so that the stops on the bit butt against the stops (P6) on the adapter **E8** and the cuts are directed upwards. From this condition turn the knob (P5) to turn the pin-cam securing the key.
- 5) Push the **E8** adapter until the side (Y) is butting against the fixed part of the S100 - A clamp, tighten the grub screw (B9).
- 6) Press the START key to continue.
- 7) When the decode process starts the carriage will take the key into contact with the laser beam along an ideal path.

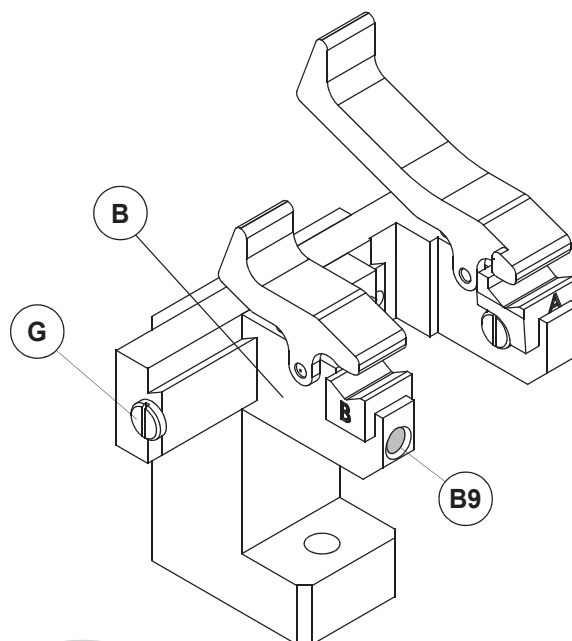


Fig. 44

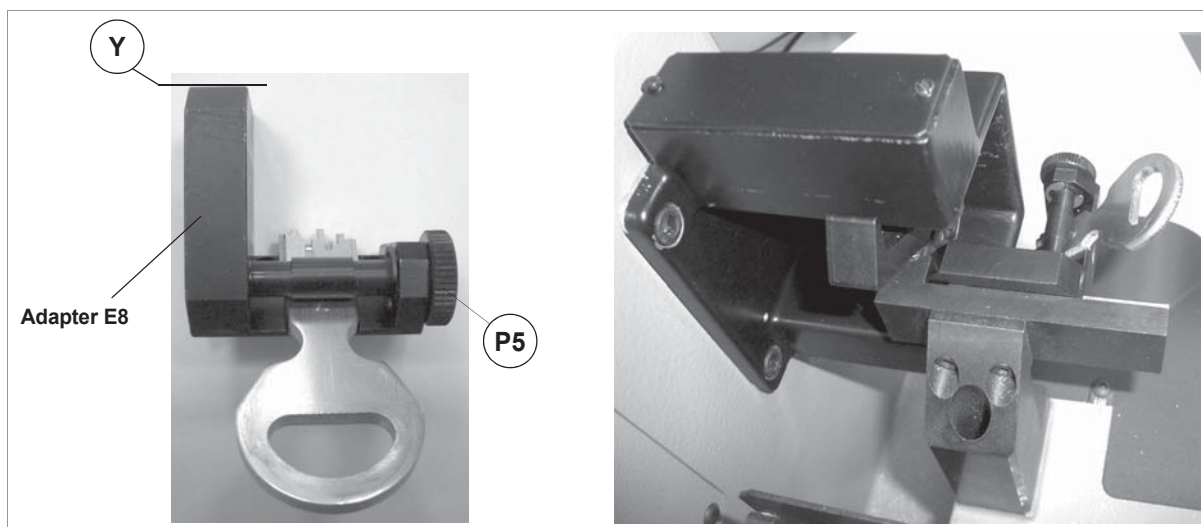
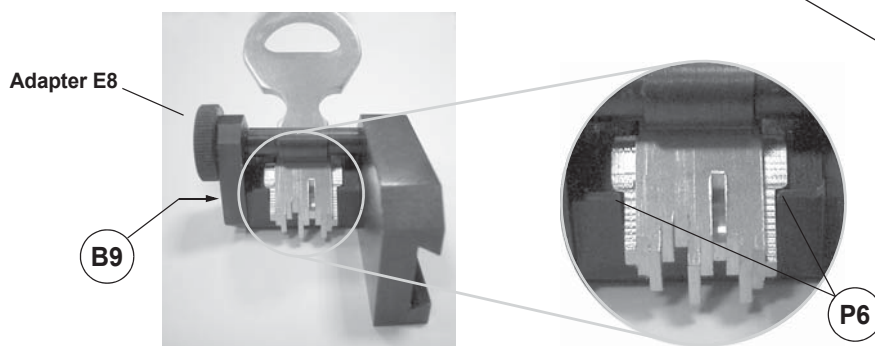


Fig. 45

- 8) At the end of the cycle see the message on the display in order to continue.

Decoding in progress...  
Bit 1

Bit 1  
5 3 1 0 2 5 4 3 2 4  
Possible depths:  
0 1 2 3 4 5 [10]



To cut Muel keys, proceed as follow:

### CUTTING MUEL PUMP KEYS

SSN 328	M1	Brass
Clamp: S1-K1		Stop:0
Cutt : 1.25		Adapt: <b>E4</b>
Pcs. = 1/1		

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of Muel pump keys requires the use of the **E4** adapter and the key reference on "**Stop 0**".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key).
- 2) Take the 'T' wrench (T4) from its seat and fit into the screw (V1), then loosen until the jaws are fully open. At the end of the operation do not remove the 'T' wrench from the screw (fig. 47).

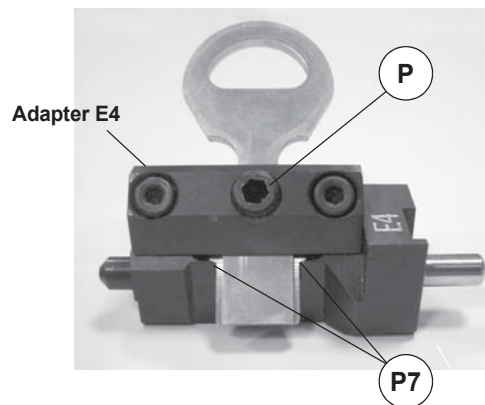


Fig. 46

- 3) Fit the key blank into the adapter **E4** so that the bit stops butt against the **E4** adapter stops (P7) (fig. 46); tighten the screw (P).
- 4) Fit the **E4** adapter, with the key blank in the rotating clamp (S1) from the inside, take the adapter up to the side of the self-centring jaws and slightly close the grips on the rotating clamp with the 'T' wrench (T4).
- 5) Move the rotating clamp S1 so that the adapter **E4** enters the tailstock K1.
- 6) Tighten the knob (T1). Use the T wrench (T4) to tighten the screw (V1) first, then the screw (V2) (fig. 46). Replace the T wrench (T4) into its seat, lower the mobile safety shield and begin the process with START.

- To remove the key at the end of the cutting operation: loosen the grub screw (P) and remove the key, or carry out the operations described above, in reverse order.

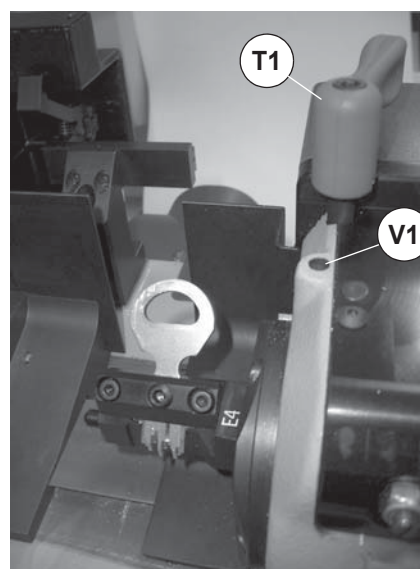


Fig. 47

Cutting in progress  
Copy: 1 of: 1  
Bit 1

Copy 1 of 1 finished  
More copies ?  
NO=Stop YES =Enter

- You can now press ENTER in order to make further copies of the key.
- Select **STOP** to quit.

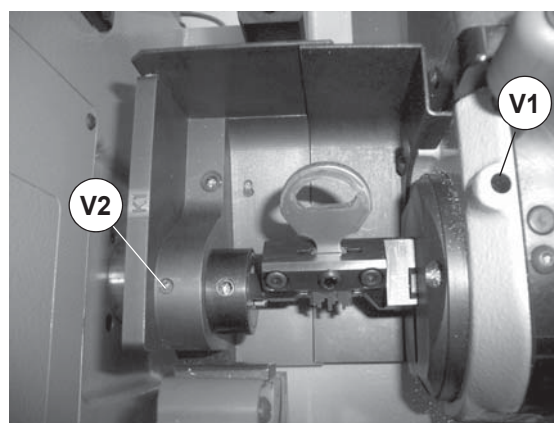


Fig. 48

## 5.11 FIAM KEYS

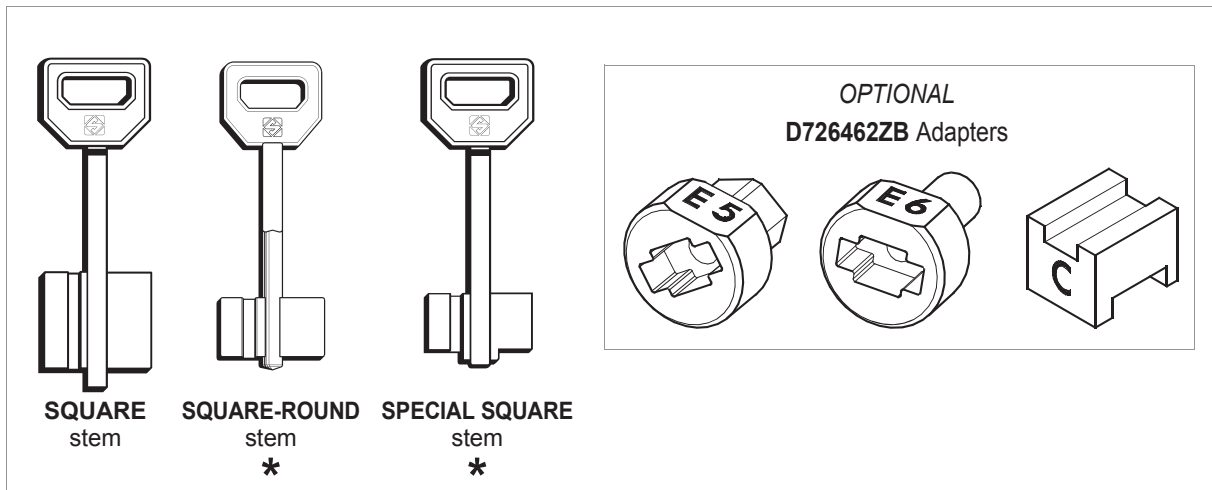


Fig. 49

### (\*) WITH OPTIONAL

#### E5

Centring device for FIAM keys (E5 - ID), used in cutting (install on the K1 tailstock) (Special Square Stem).

#### E6

Centring device for FIAM keys (E6 - ID), used in reading (install on the fixed clamp S100-A).

#### C

Adapter for FIAM keys (C - ID), used in reading (install on clamp S100 in the place of jaw B), (Square-Round Stem and Special Square Stem).

When the machine requires (indicates on display) adapter **E5** or **E6** or **C**, proceed in the way described in the following examples:

- It is very important to distinguish the type of key to be copied:

<p>SELECT TYPE OF KEY</p> <p>0 - Bit stop male</p> <p>1 - Bit stop female</p> <p>2 - Shoulder stop</p>
--

- Choose **option 4** for keys with square stems; **option 5** for keys with square and round stems; **option 6** for keys with special square stems (step on tip).

<p>3 - Pump</p> <p>4 - Square-square tip</p> <p>5 - Square-round tip</p> <p>6 - Square-stepped tip</p>
--

- Choose **option 1** - Reading + Cutting

<p>1 - Reading + Copying</p> <p>2 - Cutting only</p> <p>3 - Reading only</p> <p>4 - Post-reading adj.</p>
---

## KEYS READING

### READING SQUARE STEMMED FIAM KEYS

<p>KEY READING          Original on right          Clamp:S100 A-B Stop: 0          [START]</p>
--

Operate as follows:  
 See Operating Manual, as for keys with front stop M.

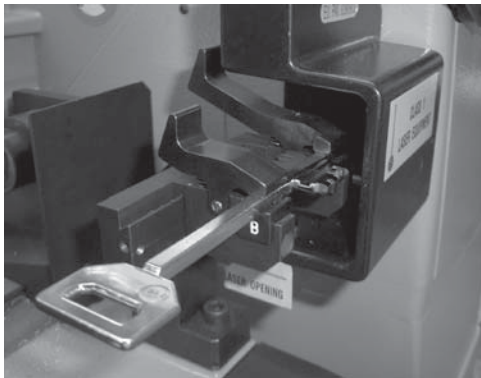


Fig. 50

### READING SQUARE AND ROUND STEMMED FIAM KEYS

<p>KEY READING          Original on right          Clamp: S100 A-C Stop: 0          [START]</p>
---

Operate as follows:

- 1) Press the grip on the S100-B1 mobile clamp and remove the adapter (jaw B).
- 2) Install jaw C so that the letter C is facing the operator.
- 3) Open the fixed clamp (A) and the mobile clamp (C) by exerting pressure on the jaw lever (F) and (F1).
- 4) Fit the key into the special groove taking the bit all the way into the fixed clamp (A).

**ATTENTION:** *position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.*

- 5) Release the jaw lever.
- 6) Place the mobile clamp (C) in the best position on the stem between the bit and key head. Make sure that there is a distance of min. 3 mm and max. 15 mm between the bit and inside of the mobile clamp (C) (the square part of the stem should butt against jaw C).
- 7) When the reading process starts the carriage will take the key into contact with the laser beam along the path dictated by the Software.

At the end of the cycle see the message on the display in order to continue.

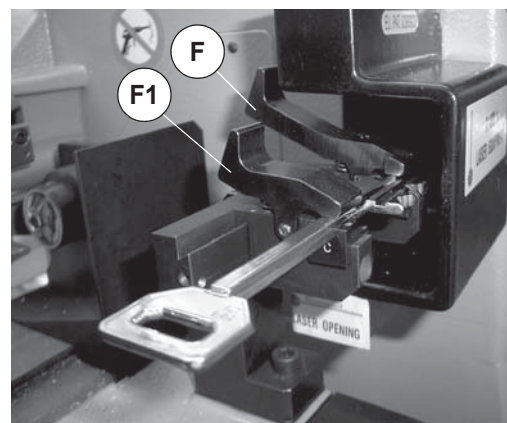


Fig. 51

## READING SPECIAL SQUARE STEMMED FIAM KEY (WITH STEP)

KEY READING  
Original on right  
Clamp:S100 A-C Stop: 0  
[START]

Operate as follows:

- 1) Press the grips on the S100-B mobile clamp and remove the adapter (jaw B) (fig. 52).
- 2) Install jaw C so that the letter C is facing the operator (fig. 52).
- 3) Open the fixed clamp (A) by pressing on the grip lever (F) and fit the **E6** adapter on the S100-A clamp so that it butts against jaw A and the initials **E6** are upwards.
- 4) Press on the lever grip (F1) and fit the key into its seat so that the bit is up against the fixed clamp (E6) (fig. 53).

**ATTENTION:** *position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.*

- 5) Release the jaw lever.
- 6) Press START to proceed.
- 7) When the reading process starts the carriage will take the key into contact with the laser beam along an ideal path.

At the end of the cycle see the message on the display in order to continue.

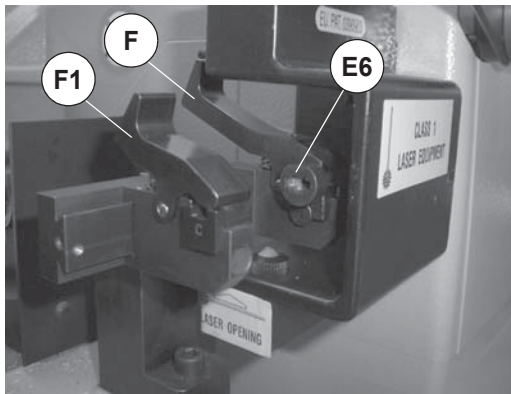


Fig. 52



Fig. 53

Reading in progress...

Data processing  
in progress  
Please wait...

## **CUTTING KEYS**

### **CUTTING FIAM KEYS WITH SQUARE STEM**

### **CUTTING FIAM KEYS WITH SQUARE-ROUND STEM**

Left blank	Brass
Clamp: S1-K1	Stop:0
Cutt.: 1.25	
Pcs. = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or positioning point on the key cutting clamp.

**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness)

**Brass/Steel** = material of the key (press SHIFT+ ? to change material)

**ATTENTION:** always check that the wording corresponds to the material of the key.

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with front stop requires the use of the rotating clamp (S1), the "K1" tailstock support and the key reference on "Stop 0". Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key.
- 2) Orient the standard tailstock (K1) for male keys in the special seat on the support, using the screw (V2) to direct it upwards.

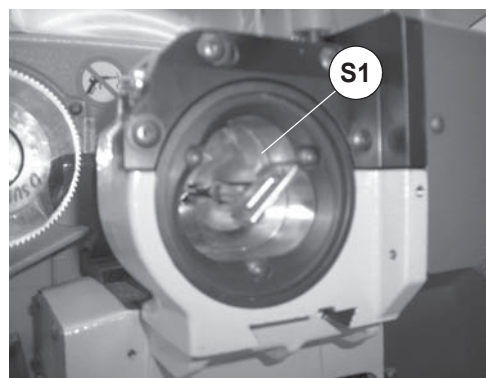


Fig. 54

- 3) Take the 'T' wrench (T4) from its seat and open the rotating clamp jaws by turning the sunk hex. screw (V1); at the end of the operation leave the T wrench in the screw (V1).
- 4) Fit the key blank into the rotating clamp (S1) from the front, positioning the square stem over the "V" on the grips diagonally so that the left-hand bit is sloping downwards (fig. 54 and fig. 55).
- 5) Close the mobile clamp jaws slightly, using the T wrench already in the screw (V1), without gripping the key stem; move the rotating clamp (G) towards the tailstock, keeping a minimum safety distance of 10 mm between the rotating clamp jaws and the rear limit of the bit. Secure the rotating clamp in position by means of knob (T1).

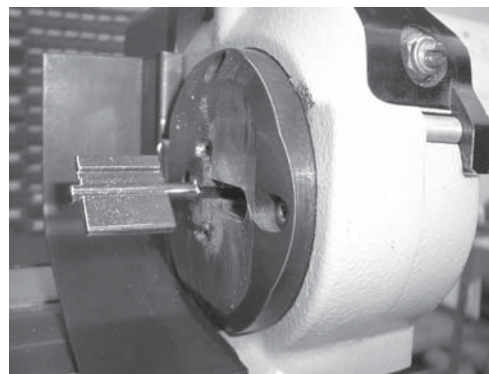


Fig. 55

- 6) Hold the key head with the left hand and push towards the tailstock, making sure that the bits butt up against the grips on the tailstock (K1); simultaneously transfer the 'T' wrench (T4) onto the tailstock screw (V2) and secure the key tip (fig. 56).
- 7) Transfer the 'T' wrench (T4) onto the screw (V1) and tighten the grips on the key stem.
- 8) Replace the 'T' wrench in its seat, lower the mobile safety shield and begin the process with START.

To remove the key after cutting, carry out the operations described, in reverse order.

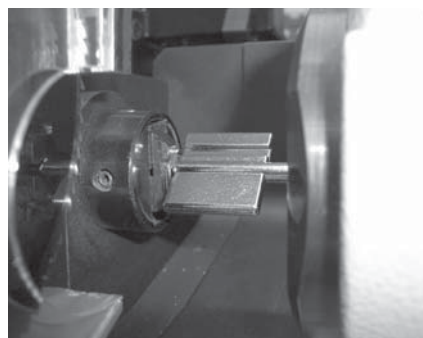


Fig. 56



## CUTTING SPECIAL SQUARE STEMMED FIAM KEY (WITH STEP)

Left blank	Brass
Clamp: S1-K1	Stop:3
Cutter: 1.25	Adap.: <b>E5</b>
Pcs = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or positioning point on the key cutting clamp.

**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness)

**Brass/Steel** = material of the key (press SHIFT+ ? to change material)

**E5 Adapter** = indicates the adapter to fit into the K1 tailstock in order to position the key properly.

**ATTENTION:** *always check that the wording corresponds to the material of the key.*

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with front stop requires the use of the rotating clamp (S1), the 'K1' tailstock support and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key.
- 2) Orient the standard tailstock (K1) for male keys in the special seat on the support, using the screw (V2) to direct it upwards.
- 3) Take the 'T' wrench (T4) from its seat and use on the screw (V2) to open the K1 tailstock grips.
- 4) Fit the adapter **E5** into the K1 tailstock so that the initials **E5** are facing upwards and the adapter is butting well up against the K1 tailstock grips (fig. 57).
- 5) Tighten the screw V2 with the (T4) wrench.
- 6) Take the T wrench (T4) from its seat and open the rotating clamp jaws by turning the sunk hex. screw (V1); at the end of the operation leave the T wrench in the screw (V1).

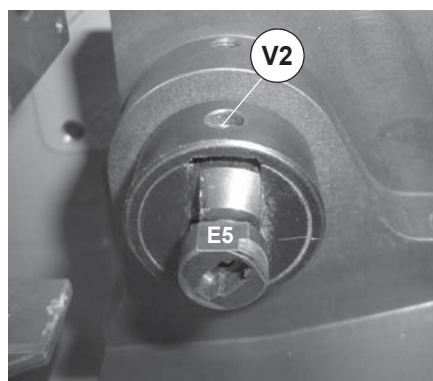


Fig. 57

- 7) Fit the key blank into the rotating clamp (S1) from the front, positioning the square stem over the "V" on the grips diagonally so that the left-hand bit is sloping downwards (fig. 54 and fig. 55).
- 8) Use the 'T' wrench, already on the screw (V1), to slightly tighten the grips on the rotating clamp, without exerting pressure on the key stem; move the rotating clamp (G) towards the tailstock, keeping a minimum safety distance of 10 mm between the grips on the rotating clamp and the rear end of the bit. Secure the rotating clamp by tightening the knob (T1).
- 9) Hold the key head with the left hand and push the key, making sure that the bits butt up against the adapter **E5** installed on the tailstock (K1); simultaneously close the grips on the key stem by means of the 'T' wrench (T4) already on the screw.

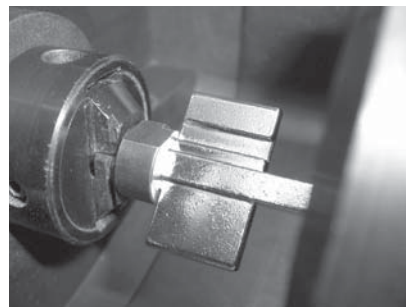


Fig. 58

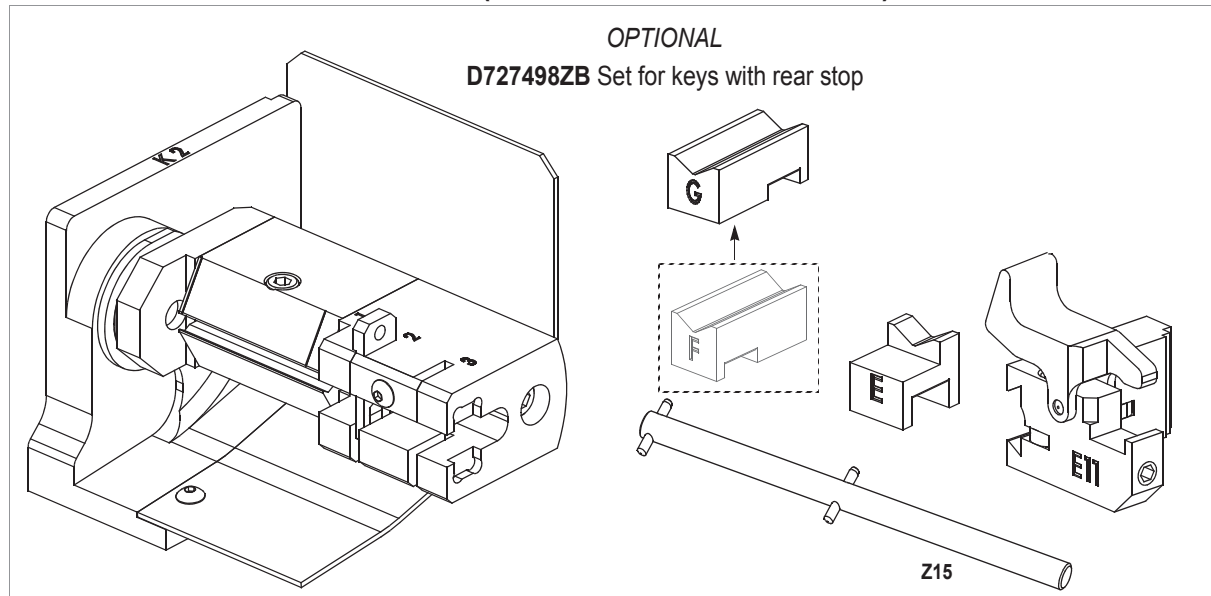
Replace the T wrench in its seat, lower the mobile safety shield and begin the process with START. To remove the key after cutting, carry out the operations described, in reverse order.

Cutting in progress  
Copy: 1 of: 1

Copy: 1 of 1 finished  
More copies ?  
No=STOP Yes=ENTER

You can now press ENTER in order to make further copies of the key.

## 5.12 KEYS WITH REAR STOP (MALE KEYS AND FEMALE KEYS)



The set comprises:

**K2:** Tailstock for keys with rear stop.

**E11:** Adapter for reading (install on S100 clamp in place of S100-B mobile clamp).

**E:** Adapter (E = ID initial), used for reading some types of keys (install on S100-E11 mobile clamp) (see diagram "TYPE OF KEYS", page 47).

**F / G:** Adapter (F or G = ID initial), used for reading some types of keys (install on S100-E11 mobile clamp according to the type of key) (see diagram "TYPE OF KEYS", page 47).

**Z15:** Template for gauging the cutting unit with K2 tailstock (Gauging – Cutting unit – Clamp S1-K2)

**Note:** before starting any operation for keys with rear stops the K1 tailstock must be removed. Simply loosen the screw (W) with the wrench (T4) (fig. 59) and push the K1 tailstock to the left in order to remove it from its seat. If this is not done, an alarm will appear, even in the case of a simple reading operation: **ALARM 17**

ALARM 17  
Key origin  
not found !  
See operating manual

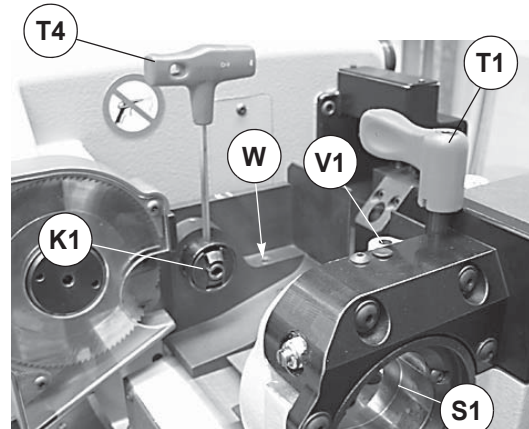


Fig. 59

### To install K2 tailstock:

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to the end of run towards the operator, then use the (T4) wrench to tighten the rotating clamp screw (V1) in order to close the self-centring jaws.
- 2) Fit the K2 tailstock into its seat, slightly inclined to the left, with the fixing cam (C) (fig. 60) aligned with the slide runners and secure by tightening the screw (W1) (fig. 67, page 48) with the (T4) wrench.
- 3) Take the (S1) rotating clamp towards the K2 tailstock so that they fit together perfectly, then secure by tightening the knob (T1).

**Note:** use the (T4) wrench to loosen the screw (V1), in order to open the jaws of the (S1) rotating clamp, exerting normal pressure to secure the K2 tailstock firmly to the (S1) rotating clamp.

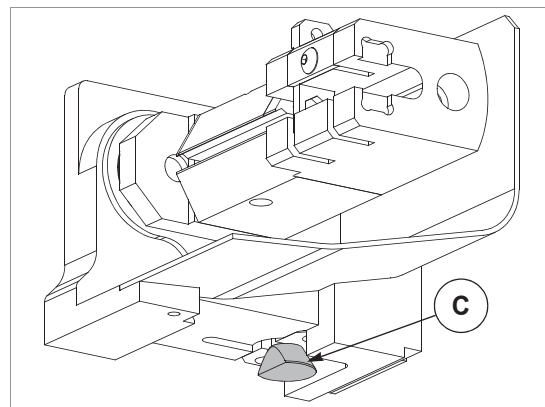


Fig. 60

**Proceed with GAUGING.**

- Use the arrow keys [up, down] to scroll.

1 - Clamps  
2 - Cutter  
3 - Adapter

Clamps  
1 - S1 - Rotating Jaw  
2 - S100 - Reading Jaw

Clamp: S1 - K1 >>  
Adjustments: B=+000  
X=+00 Y1=+00 Y2=+00  
To calibrate [START]

- Press [SHIFT + ENTER]

**Clamp: S1 - K1** = unit comprising the S1 clamp and K1 interchangeable tailstock

>> = press [SHIFT+ENTER] to go to the other interchangeable tailstocks used with the S1 clamp, if applicable.

**Clamp: S1 - K2** = unit comprising the S1 clamp and K2 interchangeable tailstock

Clamp: S1 - K2  
Adjustments: B=+000  
X=+00 Y1=+00 Y2=+00  
To calibrate [START]

**START** = press START to begin the automatic gauging procedure for the CLAMP TAILSTOCK unit.

Clamp: S1 - K2  
Install Z15 and Z13  
See operating manual  
[START]

**Template Z13** = fit in place of the cutter (fig. 61).

**Template Z15** = fit on the S1-K2 clamp as if it were a key (fig. 61). Use the plate (P) as a point of reference in position 2 with the second pin on the template up against it. Tighten the screw (W2) with the (T4) wrench. Replace the (T4) wrench in its seat.

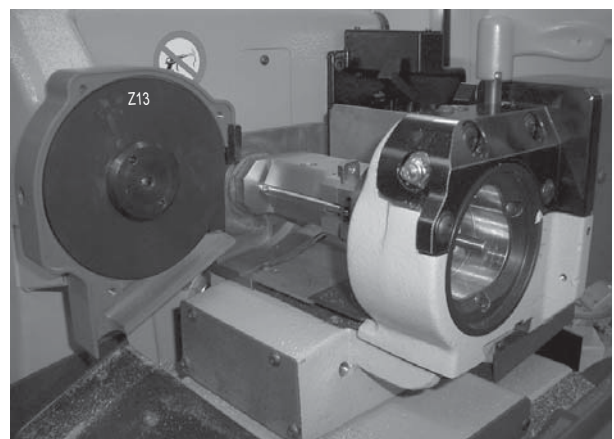
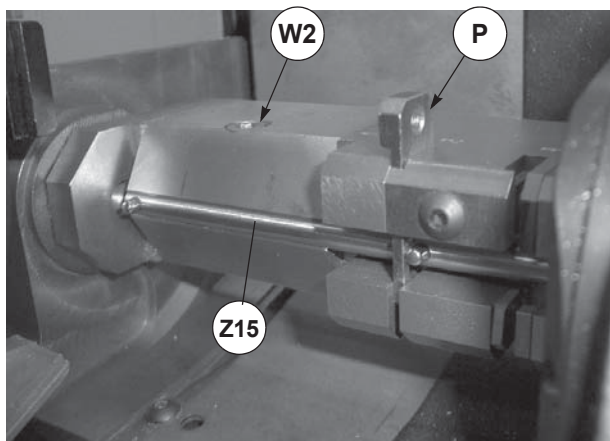


Fig. 61

Press START

Clamp: S1 - K2  
Detection  
In progress



Clamp: S1 – K2
Adjustments: B=+000
X=+02 Y1=+02 Y2=+04
To calibrate [START]

Position the pointer at the side of the parameter to be edited with the arrow keys or [ENTER] and use the following keys to edit the parameters:

[SHIFT] + [arrow up]: increases the value within **+ 300 hundredths of a mm or hundredths of a degree (axis B)**  
+ 20 cent.mm X/Y1/Y2

[SHIFT] + [arrow down]: decreases the value within **- 300 hundredths of a mm or hundredths of a degree (axis B)** -  
20 cent.mm X/Y1/Y2

[CLEAR]: to zero the value

[ENTER]: in the last field to quit the window so that the query Save? appears for the edited data:

Save
adjustments ?
No=STOP Yes=ENTER

**ATTENTION:** if [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.

-----

## OPERATION FLOW

Choose **option 0 - Copy from Original**

<b>0 - Copy from Original</b>
1 - Decode and Copy
2 - Insert cuts
3 - Queue from PC

Choose **option 7 - Rear Stop**

SELECT TYPE OF KEY
0 - Bit stop male
1 - Bit stop female
2 - Shoulder stop

3 - Pump
4 - Square-square tip
5 - Square-round tip
6 - Square stepped tip

<b>7 - Rear stop</b>
8 - Rear stop french
9 - Small bit
10 - Special bit female

Choose **option 1 – Reading + Cutting**

<b>1 - Reading + Cutting</b>
2 - Cutting only
3 - Reading only
4 - Post-Reading adj.

>

Select JAWS
-------------

A - E
A - F
A - G

KEY READING
Original on right
Clamp.:S100 A-E Stop:0
Adapt.: E11 [START]

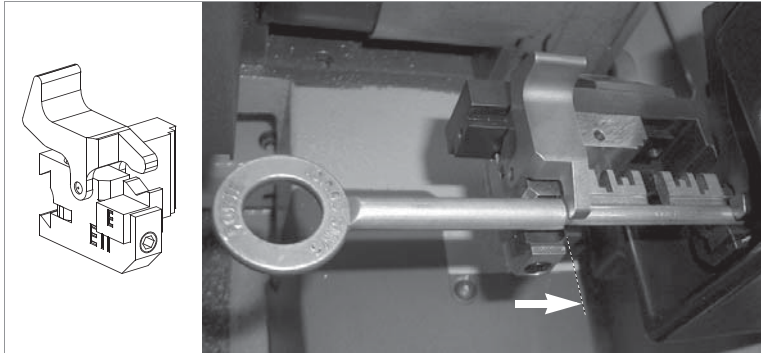
To select jaws see diagram ch. "TYPE OF KEYS" and "Choosing an adapter for READING", page 47.

## Jaws A - E

### READING / DECODING [SSN110]

- 1) Remove the mobile unit B from the S100 clamp.
- 2) Fit the E11 mobile adapter on the S100 clamp.
- 3) Fit the jaw E (with the letter facing the operator) into the E11 adapter.
- 4) Open the fixed clamp (A) and mobile clamp (E) by pressing on the gripper lever.
- 5) Place the key into its seat and take the bit up against the fixed clamp (A).

Fig. 62



**ATTENTION:** position the key so that the first tooth is facing to the left, ensuring contact with the stop (0) on the vertical face of the tooth (fig. 62).

- 6) Release the gripper lever.

**ATTENTION:** the rear stop must butt against the face of jaw E (fig. 62).

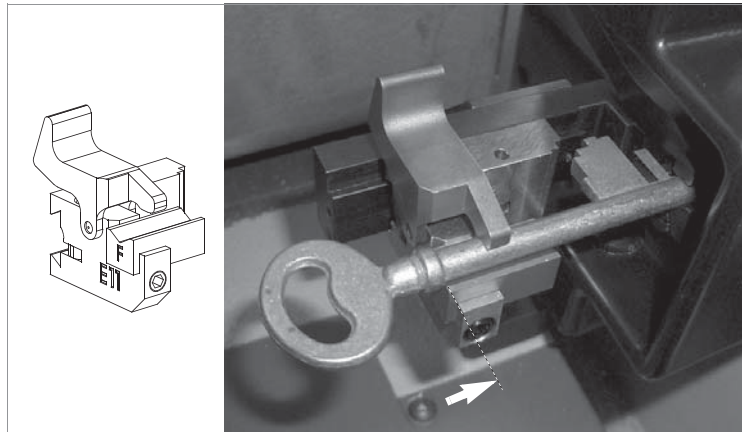
- 7) On starting the reading operation the carriage will take the key into contact with the laser beam along the path dictated by the software.
- 8) In the case of female keys, use one of the standard centring devices (according to stem diameter) on the S100-A clamp (see ch.5.14 "SPECIAL BIT FEMALE KEYS", page 57).

## Jaws A - F

### READING

- 1) Remove the mobile unit B from the S100 clamp.
- 2) Fit the E11 mobile adapter on the S100 clamp.
- 3) Fit the jaw F (with the letter towards the operator) on the E11 adapter.
- 4) Open the fixed clamp (A) and mobile clamp (F) by pressing on the gripper lever.
- 5) Fit the key into its seat and take the bit up against the fixed clamp (A).

Fig. 63



**ATTENTION:** position the key so that the first tooth is facing to the left, ensuring contact with the stop (0) on the vertical face of the tooth (fig. 63).

- 6) Release the gripper lever.

**ATTENTION:** the rear stop must butt against the face of jaw F (fig. 63).

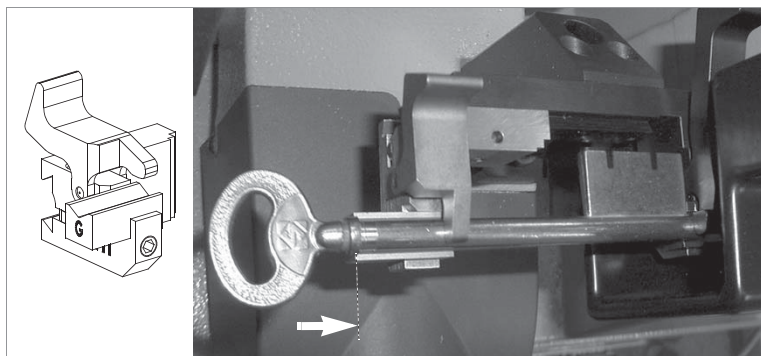
- 7) On starting the reading operation the carriage will take the key into contact with the laser beam along the path dictated by the software.
- 8) In the case of female keys, use one of the standard centring devices (according to stem diameter) on the S100-A clamp (see ch. 5.14 "SPECIAL BIT FEMALE KEYS", page 57).

## Jaws A - G

### READING

- 1) Remove the mobile unit B from the S100 clamp.
- 2) Fit the E11 mobile adapter on the S100 clamp.
- 3) Fit jaw G (with the letter towards the operator) into the E11 adapter.
- 4) Open the fixed clamp (A) and the mobile clamp (G) by pressing on the gripper lever.
- 5) Fit the key into its seat and take the bit up against the fixed clamp (A).

Fig. 64



**ATTENTION:** position the key so that the first tooth is facing left, ensuring contact with the stop (0) on the vertical face of the tooth (fig. 64).

- 6) Release the gripper lever.

**ATTENTION:** the rear stop must butt against the face of jaw G (fig. 64).

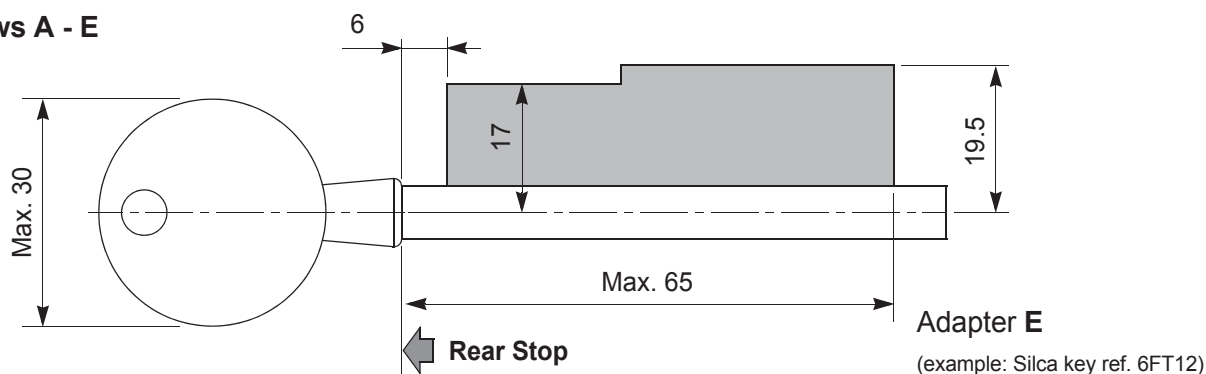
- 7) On starting the reading operation the carriage will take the key into contact with the laser beam along the path dictated by the software.
- 8) In the case of female keys, use one of the standard centring devices (according to stem diameter) on the S100-A clamp (see ch. 5.14 "SPECIAL BIT FEMALE KEYS", page 57).

TYPE OF KEYS	
Stem diameter	min. 5 mm - max. 7 mm
Collar diameter	max. 9 mm
Bit length in reading	max. 40 mm
Bit height	max. 17 mm / 19,5 mm
Distance from stop to bit	min. 6 mm
Head width	max. 30 mm

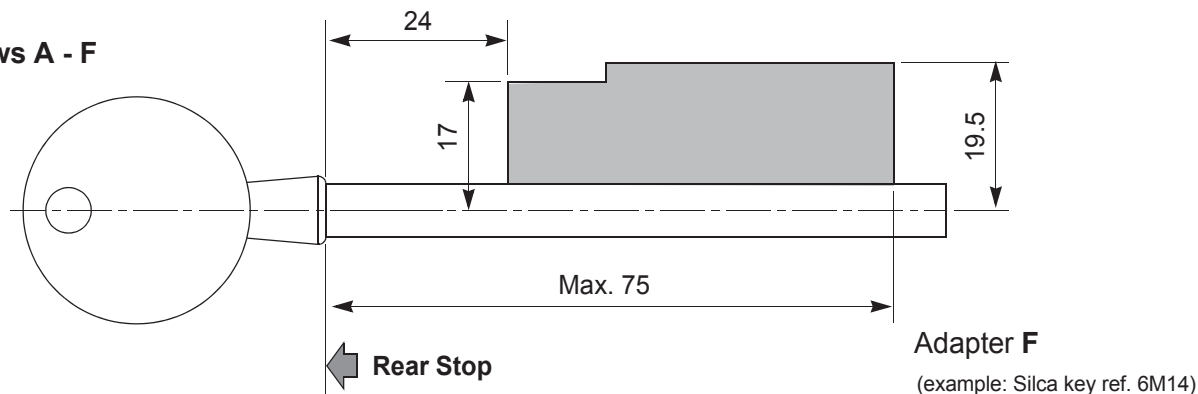
### Choosing an adapter for READING

Place the original key on the drawing, using the Rear Stop as a reference; the bit should enter the highlighted zone.

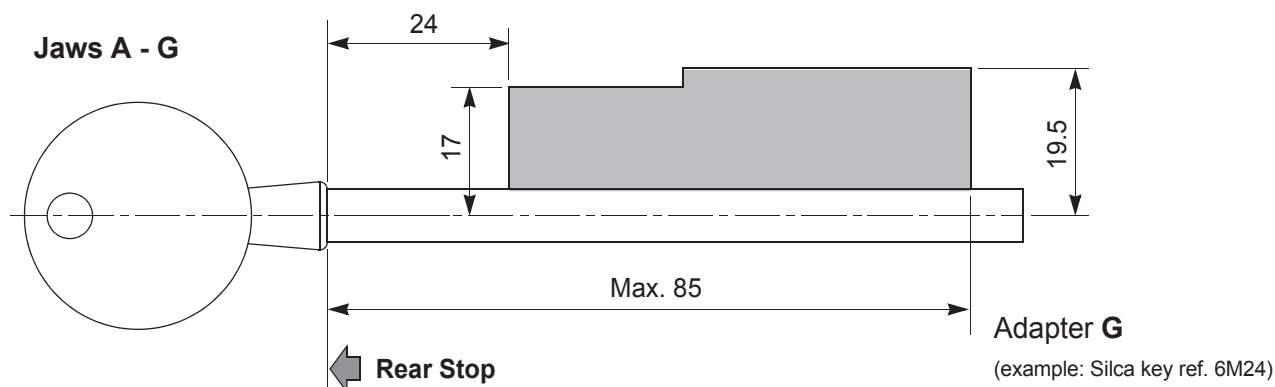
#### Jaws A - E



#### Jaws A - F



#### Jaws A - G



## CUTTING

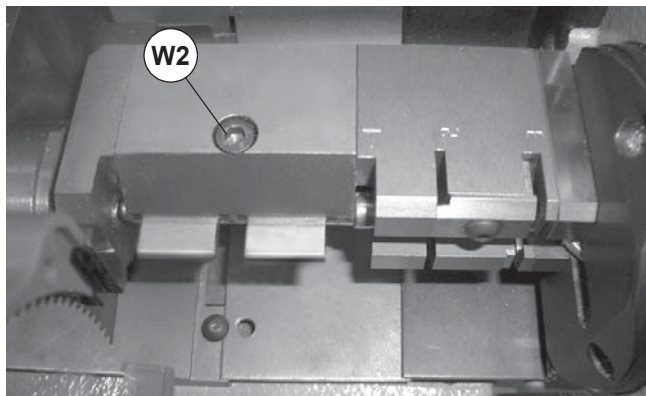
Left blank	Brass
Clamp: S1-K2	<b>Stop: ?</b>
Cutt.: 1.25	
Pcs. = 1/1	[START]

**ATTENTION:** the “cutting STOP” is not presented automatically by the machine. The operator must identify it from the diagram on page 49 and enter it from the keyboard when the display requires it.

### CUTTING (Stop 1) / DECODING SSN 110

Remove the plate (P) in order to fit the key blank into the rotating clamp (S1) from the front (\*) placing the stem into the “V” on the jaws of the K2 tailstock. Take care to keep the bit in the horizontal position and the key stop up against the stop (STOP 1). Secure the key by tightening the jaw screw (W2) with the (T4) wrench (fig. 65). Replace the (T4) wrench in its seat.

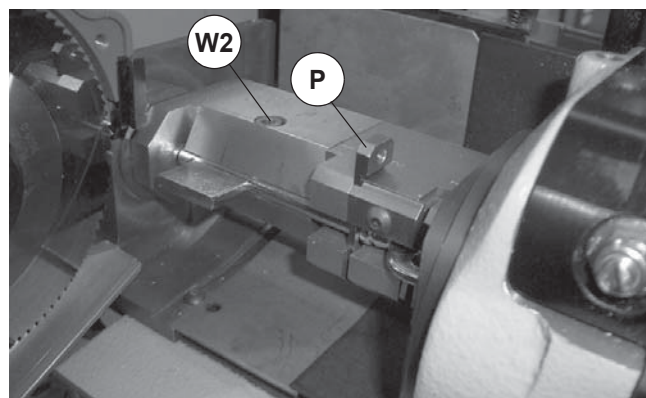
Fig. 65



### CUTTING (Stop 2)

Raise the positioning plate (P) and fit the key blank into the rotating clamp (S1) from the front (\*) placing the stem into the “V” on the jaws of the K2 tailstock. Take care to keep the bit in the horizontal position and the key stop up against the stop (STOP 2) achieved by fitting the plate (P) into its seat and securing the key by tightening the jaw screw (W2) with the (T4) wrench (fig. 66). Replace the (T4) key in its seat.

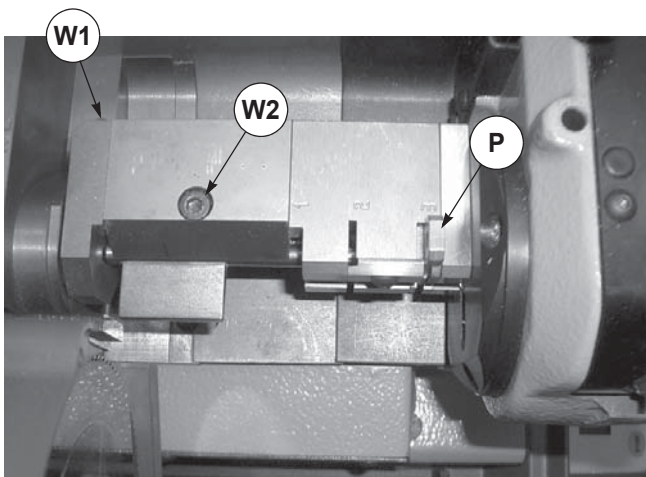
Fig. 66



### CUTTING (Stop 3)

Raise the positioning plate (P) and fit the key blank into the rotating clamp (S1) from the front (\*) placing the stem into the “V” on the jaws of the K2 tailstock. Take care to keep the bit in the horizontal position and the key stop up against the stop (STOP 3) achieved by fitting the plate (P) into its seat and securing the key by tightening the jaw screw (W2) with the (T4) wrench (fig. 67). Replace the (T4) wrench into its seat.

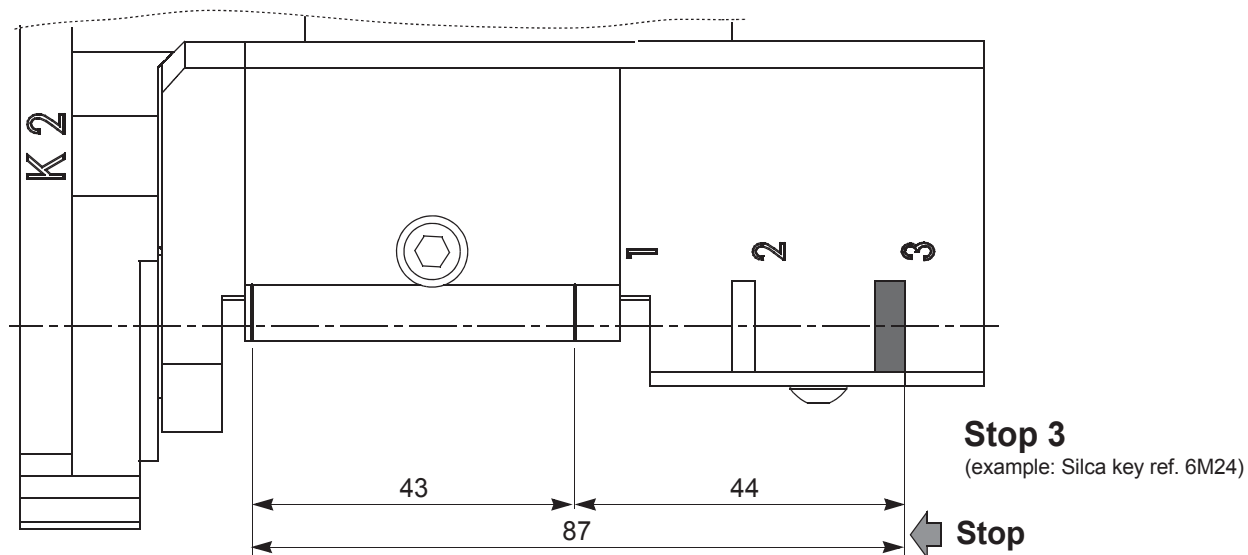
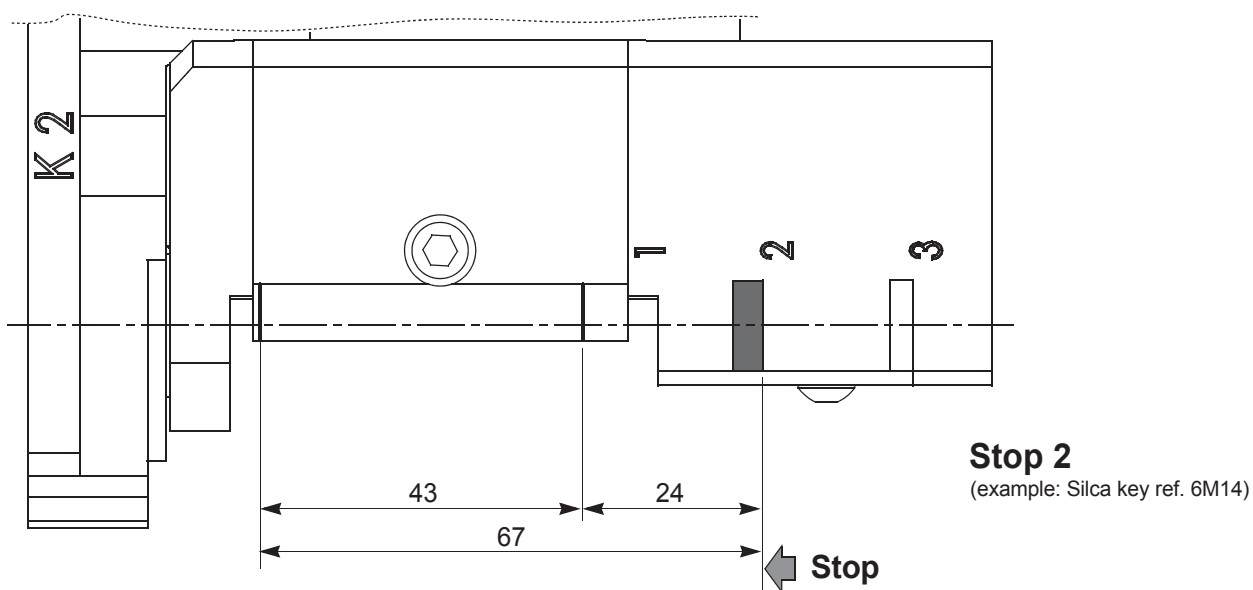
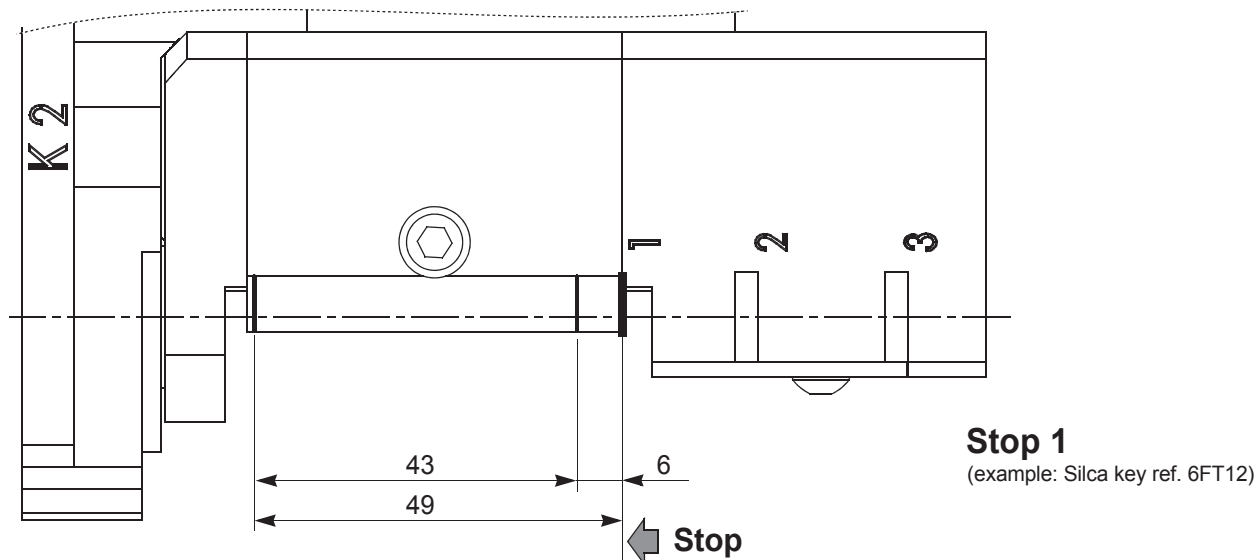
Fig. 67



(\*) Important: the key can be fitted into the S1-K2 clamp from the front or from the back, according to the type of key.

## Choosing a STOP for CUTTING

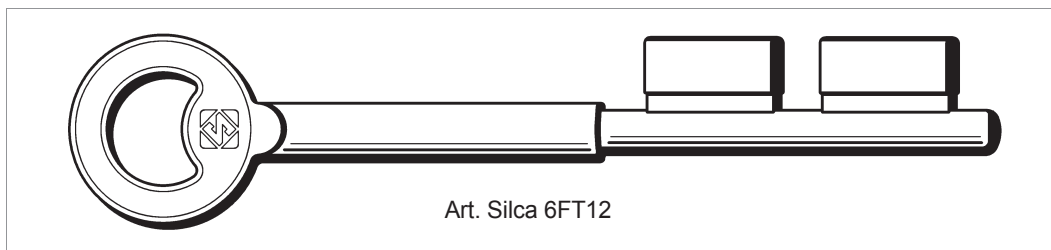
- 1) place the original key on the drawing, using the stop as a reference.
- 2) in this position the bit should enter the 43 mm zone.



Cutting in progress  
Copy: 1 of: 1

Copy 1 of 1  
finished  
More copies ?  
No=STOP Yes=ENTER

## DECODE SSN 110



**ATTENTION:** for Fichet Sans-Soucis P.P. keys operations only possible when decoding with SSN 110.

### Decoding + Cutting

SSN 110 (Decode)  
Make =  
=> Fichet  
Sans-Soucis P. P.

Decode SSN: 110  
Original on right  
Clamp S100 A-E Stop 0  
Adapt. E11 [START]

Press START,

Decoding  
in progress...

Bit 1  
\*0790636\*\*\*6360970\*  
Possible depths  
0123456789# [8]

Press ENTER,

SSN: 110 M1 Brass  
Clamp S1 – K2 Stop 1  
Cutter: 1,25  
Pcs. 1 / 1 [START]

Press START to cut.

Cutting in progress  
Copy: 1 of: 1

Copy 1 of 1  
finished  
More copies ?  
No=STOP Yes=ENTER



### 5.12.1 FRENCH REAR STOP KEYS

For this type of keys see the information in Chapter 5.12 "KEYS WITH REAR STOP (Male keys and Female keys)", page 43.

**TYPES OF KEYS:** see page 47.

#### OPERATION FLOW

Choose **option 0 - Copy from Original**

##### 0 - Copy from Original

- 1 - Decode and Copy
- 2 - Insert cuts
- 3 - Queue from PC >>

Choose **option 8 - Rear Stop french**

##### SELECT TYPE OF KEY

- 0 - Bit stop male
- 1 - Bit stop female
- 2 - Shoulder stop

- 3 - Pump
- 4 - Square-square tip
- 5 - Square-round tip
- 6 - Square stepped tip

- 7 - Rear stop
- 8 - Rear stop french**
- 9 - Small bit
- 10 - Special bit female

Choose **option 1 – Reading + Cutting**

##### 1 - Reading + Cutting

- 2 - Cutting only
- 3 - Reading only
- 4 - Post-Reading adj.

##### KEY READING

Original on right

Clamp.: S100 A-E Stop: 0

Adapt.: E11 [START]

**NOTE:** Jaws F or G could also be used (see JAWS A-E / A-F / A-G on page 46. The rear stop is not necessarily up against the side of the jaw (fig. 68).

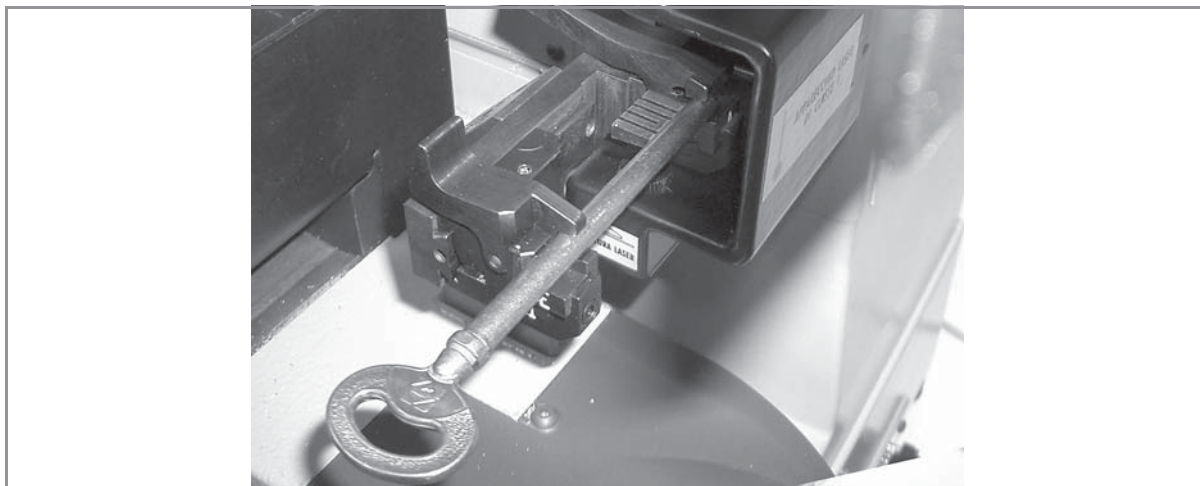


Fig. 68

## CUTTING

Left blank	Brass
Clamp: S1-K2	<b>Stop: 0</b>
Cutt.: 1.25	
Pcsz. = 1/1	[START]

### • CUTTING (Stop 0)

Raise the positioning plate (P) and fit the key blank into the rotating clamp (S1) from the front end (\*). Place the stem into the 'V' on the jaws of the K2 tailstock, taking care to keep the bit horizontal and the key stop up against the stop (STOP 0) obtained by fitting the plate (P) up against the front end of the K2 tailstock. Secure the key by tightening the jaw screw (W2) with the wrench (T4) (fig. 67). Replace the plate (P) in position in seat 2 or 3. Replace the (T4) wrench in its seat.

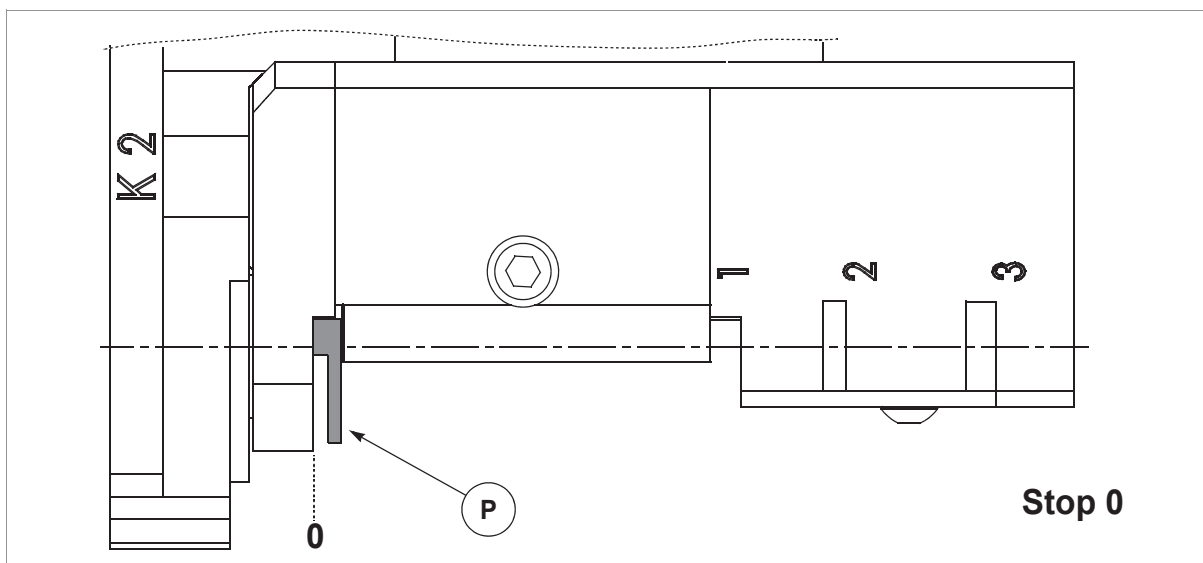


Fig. 69

**NOTE:** the key can be fitted into the S1-K2 clamp from the front or from the back, according to the type of key

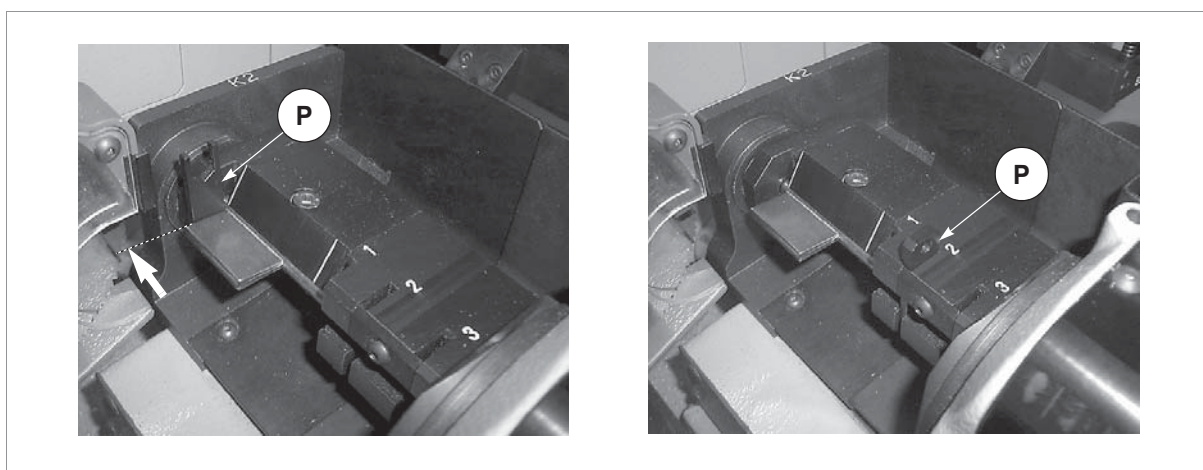


Fig. 70



### 5.13 SMALL BIT / DOUBLE BIT KEYS

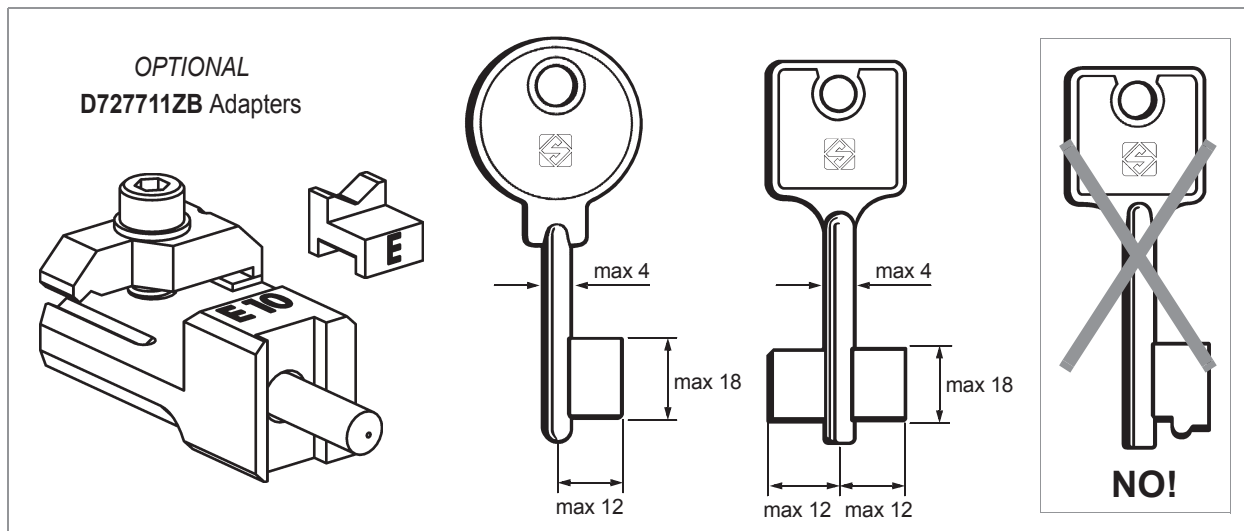


Fig. 71

The set comprises:

**E10** Adapter for small bit or double bit keys (E10 = ID initials), used for cutting.

**E** Adapter for small bit or double bit keys (E = ID initials), used for reading (to fit to the S100 clamp in the place of jaw B).

When the machine requires (indicates on display) adapter **E10** or **E**, proceed as follows:

- It is very important to distinguish the type of key to be copied: Choose **option 9 - Small bit**.

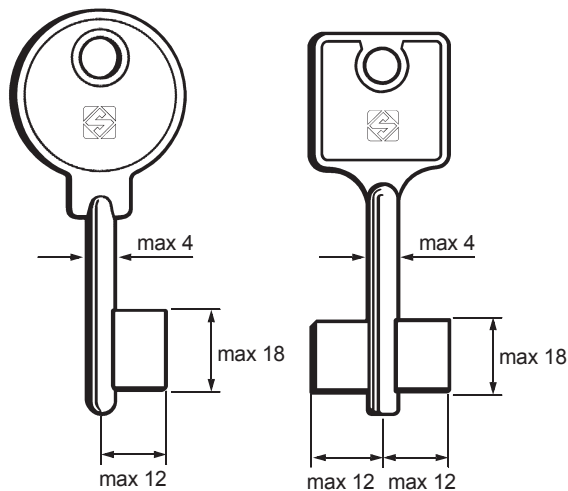
SELECT TYPE OF KEY
0 - Bit stop male
1 - Bit stop female
2 - Shoulder stop
3 - Pump
4 - Square-square tip
5 - Square-round tip
6 - Square stepped tip
7 - Rear stop
8 - Rear stop french
<b>9 - Small bit</b>
10 - Special bit female

Choose **option 1 - Reading + Copying**:

<b>1 - Reading + Copying</b>
2 - Cutting only
3 - Reading only
4 - Post-Reading adj.
KEY READING
Original on right
Clamp: S100 A - E Stop: 0
[START]

Operate as follows:

## READING small bit or small double bit keys



### Note:

Maximum dimensions of keys for Reading from the original:

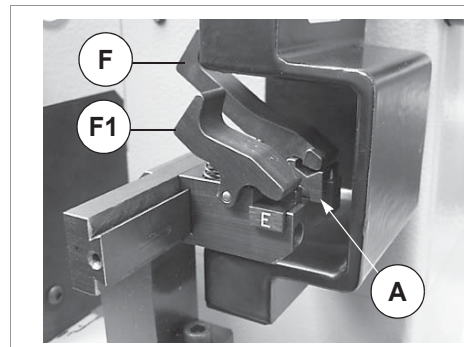
- Max. stem thickness = 4 mm
- Max bit length = 18 mm
- Max. bit height = 12 mm

If these conditions are not observed, the machine will produce the error "Key cannot be decoded".

Fig. 72

- 1) Press the grip on the S100 mobile clamp and remove the adapter (jaw B).
- 2) Install jaw **E** so that the letter E is facing the operator.
- 3) Open the fixed clamp (A) and the mobile clamp (E) by exerting pressure on the jaw lever (F) and (F1) (fig. 73).

Fig. 73



- 4) Fit the key into the special seat (axis X1) taking the bit all the way into the fixed clamp (A) (fig. 74).

**ATTENTION:** position the key so that the highest tooth is facing left, ensuring contact with the stop (0) on the vertical side of the tooth.

- 5) Release the jaw lever.
- 6) Place the mobile clamp (E) in the best position on the stem between the bit and key head. Make sure that there is a distance of min. 3 mm and max. 15 mm between the bit and inside of the mobile clamp (E) (fig. 87).

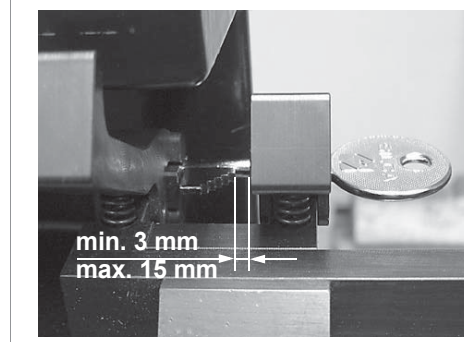
When the reading process starts the carriage will take the key into contact with the laser beam along the path dictated by the Software.

Fig. 74



- 7) At the end of the cycle see the message on the display in order to continue.

Fig. 75



Reading in progress...
Data processing in progress Please wait...

## CUTTING small bit or small double bit keys

Left blank	Brass
Clamp: S1-K1	Stop: 0
Cutt : 1.25	Adapt.: E10
Pcs. = 1/1	[START]

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or positioning point on the key cutting clamp.

**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness).

**Brass/Steel** = material of the key (press SHIFT+ ? to change material).

**Adapter E10** = shows the adapter to fit on the rotating clamp in order to position the key properly.

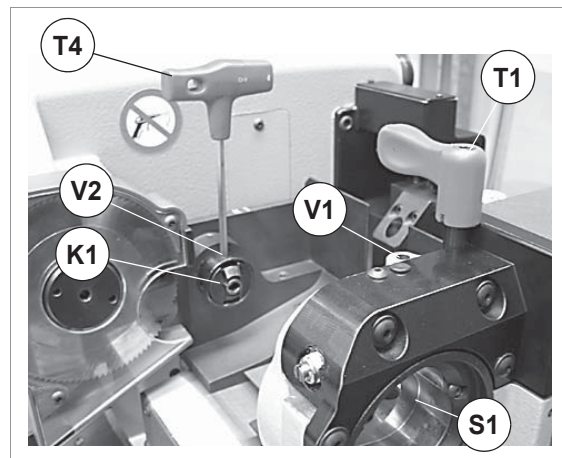
**ATTENTION:** always check that the wording corresponds to the material of the key.

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key (small bits) with front stop requires the use of adapter **E10** and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key).
- 2) Orient the standard tailstock (K1) for male keys in the special seat on the support, using the screw (V2) to direct it upwards (fig. 76).

Fig. 76

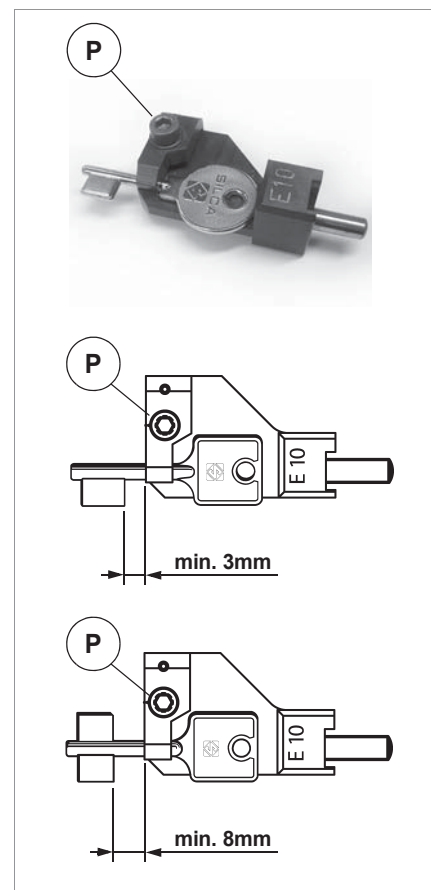


- 3) Take the 'T' wrench (T4) from its seat and fit into the screw (V1) (fig. 76), then loosen until the jaws are fully open. At the end of the operation do not remove the 'T' wrench from the screw (V1).
- 4) Fit the key blank into the adapter E10, taking care to position it properly (fig. 77); tighten the (P) screw.

### ATTENTION:

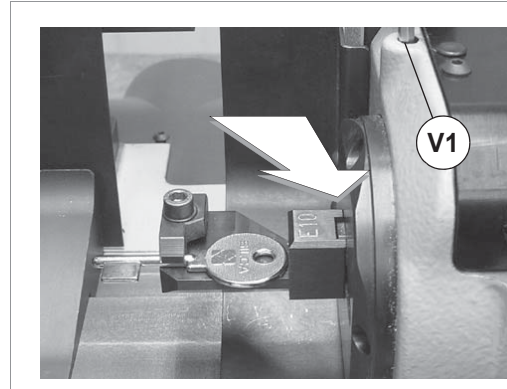
For single bit keys the distance between the adapter and the end of the bit should be at least 2-3 mm (fig. 77). For double bit keys the distance between the adapter and the end of the bit should be at least 8 mm (fig. 77). If these measurements are not observed the display will show an error: "ERROR 17 Adapter not properly fitted".

Fig. 77



- 5) Fit the E10 adapter, with the key blank in the rotating clamp (S1) from the inside, take the adapter up to the side of the self-centring jaws (fig. 78) and slightly close the grips on the rotating clamp with the 'T' wrench (T4).
- 6) Move the rotating clamp (S1) so that the key fits into the tailstock (K1) with the bit all the way in (fig. 79).
- 7) Tighten the knob (T1). Use the T wrench (T4) to tighten the screw (V1) first, then the screw (V2) (fig. 80). Replace the 'T' wrench (T4) into its seat, lower the mobile safety shield and begin the process with START.

Fig. 78



Cutting in progress...  
Copy: 1 of: 1

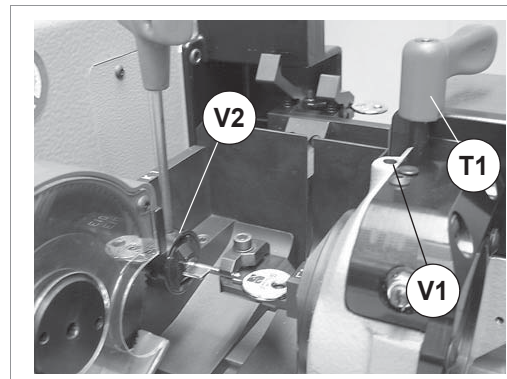
Copy 1 of 1  
finished  
More copies ?  
No=STOP Yes=ENTER

To make further copies of the key, you can now press ENTER.

Fig. 79



Fig. 80



## 5.14 SPECIAL BIT FEMALE KEYS

OPTIONAL  
D728717ZB Adapters

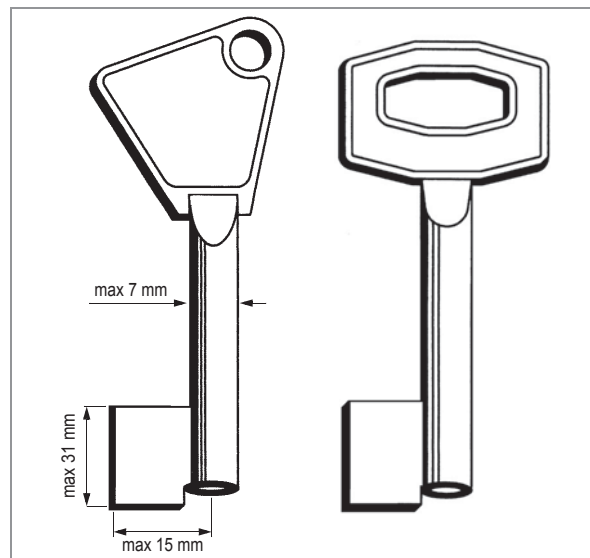
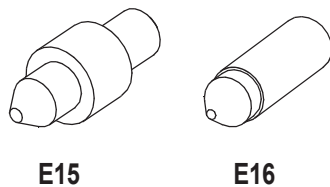


Fig. 81

The set comprises:

**E15** Adapter – Centring device (E15 = ID code), used for cutting (install on the K1 tailstock).

**E16** Adapter – Centring device (E16 = ID code), used for reading (install on the S100 - A clamp).

When the machine requires (indicates on display) adapter **E15** or **E16**, proceed as follows:

- It is very important to distinguish the type of key to be copied:
- Choose **option 10 - Special Bit Female**.

SELECT TYPE OF KEY  
0 - Bit stop male  
1 - Bit stop female  
2 - Shoulder stop

3 - Pump  
4 - Square-square tip  
5 - Square-round tip  
6 - Square stepped tip

7 - Rear stop  
8 - Rear stop french  
9 - Small bit  
**10 - Special bit female**

Choose **option 1** – Reading + Copying:

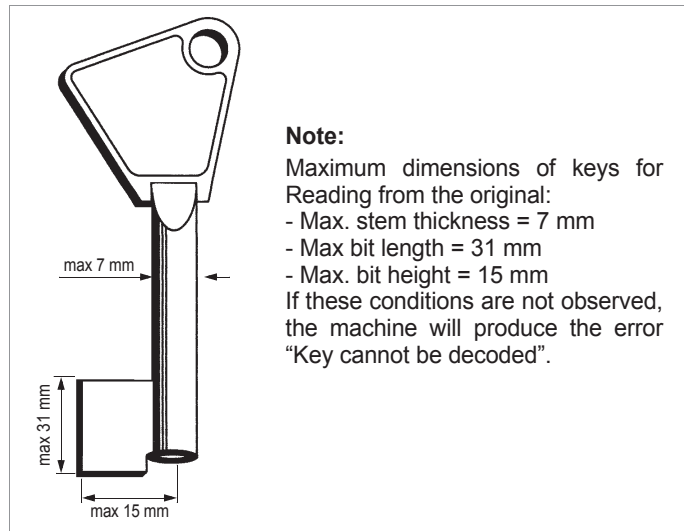
**1 - Reading + Copying**  
2 - Cutting only  
3 - Reading only  
4 - Post-Reading adj.

KEY READING  
Original on right  
Clamp: S100 A - B Stop:0  
Adapt. E16 [START]

Is adaptor E16  
installed ?  
No=STOP Yes=START

## Reading

KEY READING	
Original on right	
Clamp: S100 A - B	Stop:0
Adapt. E16	[START]
Is adaptor E16 installed ?	
No=STOP	Yes=START



- 1) Press on the grip lever of the fixed clamp (A) and fit the centring device E16 so that it protrudes towards the mobile clamp (B) (fig. 82). Release the grip lever.
- 2) Press on the grip lever on the mobile clamp (B) and fit the key so that the hole in the stem is up against the centring device E16 (fig. 83). Release the grip lever.
- 3) Hold the key head with one hand and the end of the centring device with the other and push the key up against the stop 0 (A).
- 4) The ideal position for the mobile clamp (B) is when there is a distance of 3 mm min. and 15 mm max. between the bit and inner side of the mobile clamp (B).

**Clamp: S100 A-B** = indicates the clamp (**S100**) into which the key must be fitted, and which jaw to use.

**Stop 0** = reference or point for positioning the key on the reading clamp.

**Adapt: E16** = adapter for positioning the key (female) from the tip (only for reading).

**ATTENTION: make sure that the bit is up against the Stop 0 (A).**

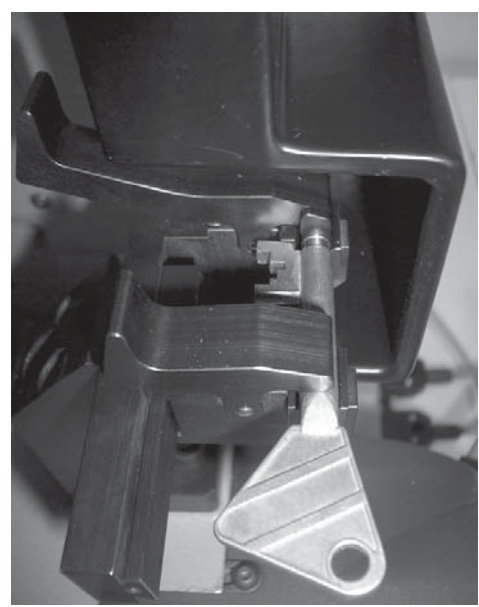
Fig. 82



Pressing Start shows:

Left blank	Brass
Clamp: S1-K1	Stop:0
Cutt: 1.25	Adptt: E15
pcs. = 1/1	[START]
Is adaptor E15 installed ?	
No=STOP	Yes=START

Fig. 83





## Cutting

Left blank	Brass
Clamp: S1-K1	Stop: 0
Cutt: 1.25	Adapt: E16
Pcs. = 1/1	[START]

Is adaptor E15  
installed ?

No=STOP      Yes=START

**Clamp: S1- K1** = indicates which clamp (S1) and tailstock (K1) to use for gripping the key.

**Stop 0** = reference or point for positioning the key on the cutting clamp.

**Cutter: 1.25** = thickness of the currently selected cutter (press SHIFT+ENTER to change thickness).

**Brass/Steel** = material of the key (press SHIFT+ ? to change material).

**Adapter E15** = adapter (centring device) to position the tip of the key (female) properly. Fit into the K1 tailstock.

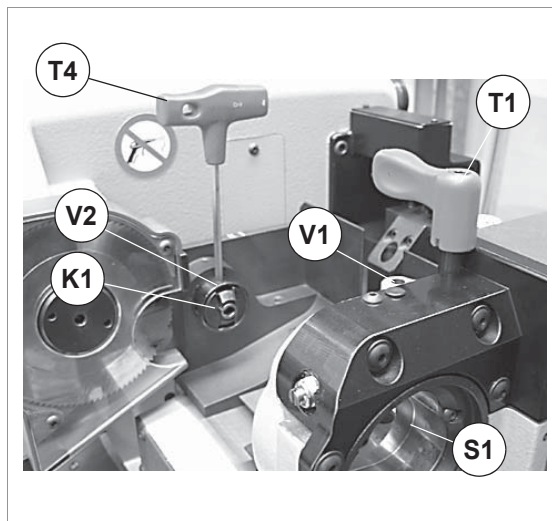
**ATTENTION:** always check that the wording corresponds to the material of the key.

The key blank to be cut must be positioned according to the parameters given on the display after selecting the program involved; the type of key with front stop requires the use of the rotating clamp (S1), the 'K1' tailstock, the E15 adapter and the key reference on "Stop 0".

Please follow the instructions below carefully, and observe the order of operations.

- 1) Loosen the knob (T1) by turning it anticlockwise until the rotating clamp (S1) can be moved to a convenient distance for fitting the key.
- 2) Fit the adapter E15 into the tailstock K1 up against the mechanical stop (fig. 85).
- 3) Use the T wrench (T4) to tighten the screw (V2) on the tailstock and secure the E15 adapter. **Attention:** the adapter E15 must be properly fitted into its seat and pressed up against the stop point.

Fig. 84



- 4) Take the T wrench (T4) from its seat and open the rotating clamp jaws by turning the sunk hex. screw (V1); at the end of the operation leave the T wrench in the screw (V1).
- 5) Fit the key blank into the front side of the rotating clamp (S1) and position it on the groove in the jaws, then take the key forward until the adapter E15 goes into the hole in the stem (fig. 86).

Fig. 85



- 6) Close the mobile clamp jaws slightly, using the T wrench (T4) already in the screw (V1), without gripping the key stem; move the rotating clamp (S1) towards the tailstock until the adapter E15 goes into the hole in the stem keeping a minimum safety distance of 10 mm between the rotating clamp jaws and the rear limit of the bit. Secure the rotating clamp in position by means of knob (T1).
- 7) Hold the key head in the left hand and align crosswise making sure that the bit is all the way up against the adapter E15 on the tailstock (K1), then close the grips round the key stem, using the T wrench (T4) already in place on the screw (V1).
- 8) Replace the T wrench (T4) in its seat, lower the mobile safety shield and begin the process with START. To remove the key after cutting, carry out the operations described, in reverse order.

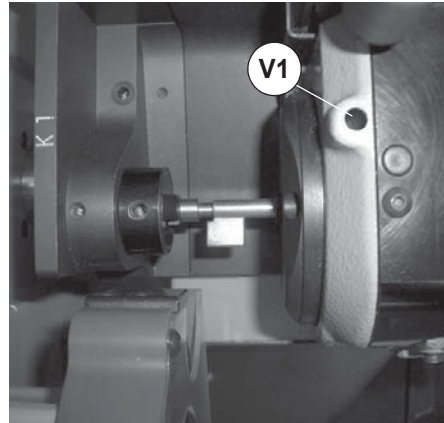


Fig. 86

- Pressing Start shows:

Reading in progress...

- When the reading process starts the carriage will take the key into contact with the laser beam along the path dictated by the Software, at the end of the cycle see the message on the display in order to continue.

Data processing  
in progress  
Please wait...

Cutting in progress...  
Copy: 1 of: 1

Copy 1 of 1  
finished  
More copies ?  
No=STOP    Yes=ENTER

To make further copies of the key, you can now press ENTER.



## 5.15 POST-READING ADJUSTMENTS TO MAKE TO THE KEY AFTER READING

To correct any defects found on the original key, proceed as follows:

ADJ. POST-READING	
0	Delete adjustments
1	Front-Rear conv.
2	X specular conv.
3	Cut depth correction
4	Bit correction

Use the arrows [Up/Down] to scroll.

**NOTE:** an asterisk (\*) next to one or more of the choices listed indicates that the relative adjustment has been made.

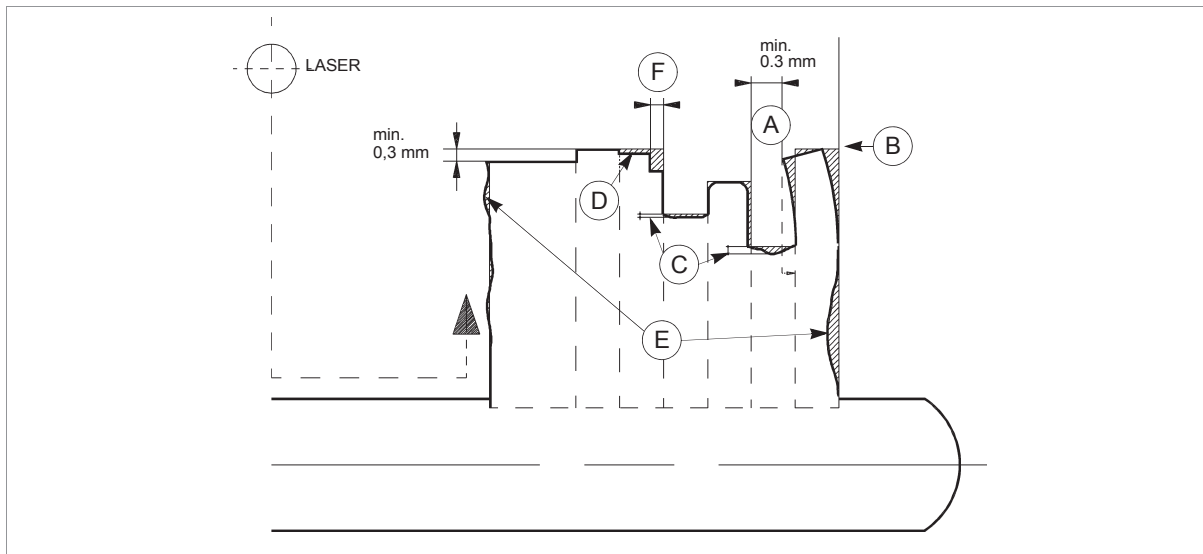


Fig. 87

- 1) Bent teeth are re-aligned vertically over the projection of the support base. The minimum distance between the edges must be at least 0.3 mm.
- 2) Worn edges on the top part of positive teeth are squared over the projection of the maximum width and height read from the tooth.
- 3) If the base of negative teeth is worn, depth is corrected up to the highest measurement for the side edges (less worn as leverage is normally exercised on the centre).
- 4) Steps read on very wide parts of the bit (cutting close to the lock tooth, identical adjacent cuts, etc.) are aligned on the highest measurement if the difference is no more than 0.15 mm.
- 5) Scratches, wear or warping read on both the vertical and horizontal faces of the teeth are regulated over the size of the tooth at its base on the stem.
- 6) Steps with a thickness of less than 0.75 mm are regulated over the prevailing measurement of the adjacent tooth.

### 5.15.1 Front-rear bit conversion

The "FRONT-REAR BIT CONVERSION" function makes it possible to make a supplementary correction to the data read from a key which has symmetrical cuts on the bit. The operator may activate this function when part of the bit is more worn than its corresponding part (e.g. wear on the side of the key which operates only on the outside of the lock) or a tooth is missing or broken which was identical to the one symmetrically placed on the opposite side of the bit (fig. 88).

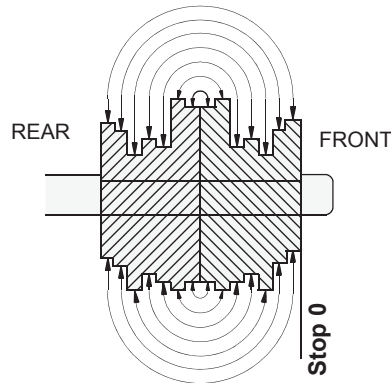


Fig. 88

Applicate Front Rear bit conversion ? No=STOP Yes=ENTER
--

The software program which converts the bit divides it symmetrically into two parts (front and rear), attributing each tooth with the deepest cut of the two teeth symmetrically opposed.

**Stop:** to quit

**Enter:** to continue (confirmation)

### 5.15.2 "X" Specular bit conversion

The "X SPECULAR BIT CONVERSION" function makes it possible to make a supplementary correction to the data read from a key which has diagonally symmetrical cuts on the bit.

The operator may activate this function when part of the bit is more worn than its corresponding part (e.g. wear on the side of the key which operates only on the outside of the lock) or a tooth is broken or missing which was identical to the one specularly placed on the opposite side of the bit (fig. 89).

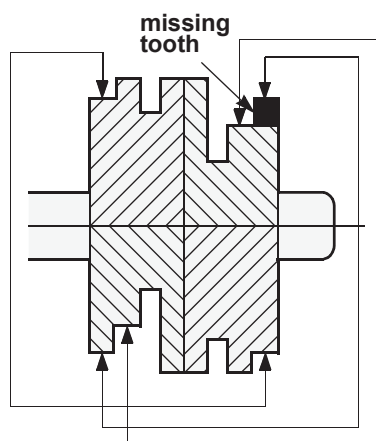


Fig. 89

Applicate  
X specular  
bit conversion ?  
No=STOP Yes=ENTER

Bit Depth  
Bit 1 = +00  
Bit 2 = +00  
[ENTER]=CONFIRM

**Stop** : to quit

**Enter**: to continue (confirmation)

### 5.15.3 Correcting bit depth

With the "CORRECTING BIT DEPTH" function a number of alterations can be made to measurements for the cuts on all the teeth (on sides 1 and 2 for double bit keys) within the limits of min. -0.50 mm and max. +0.50 mm

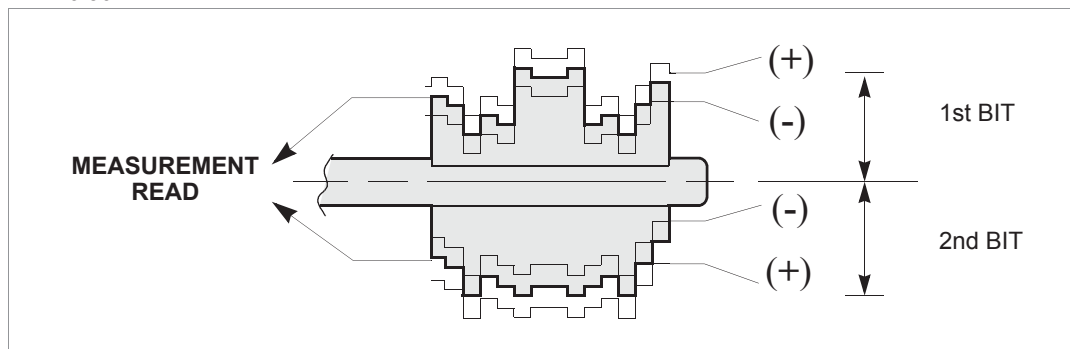


Fig. 90

Correcting Bit Depth  
Bit 1 = +00  
Bit 2 = +00  
[ENTER] = CONFIRM

**Use SHIFT + [arrow Up] key** for higher values (bit is cut less)

**Use SHIFT + [arrow Down] key** for lower values (bit is cut more)

### 5.15.4 Bit construction

The "BIT CONSTRUCTION" function is useful when a positive tooth (the high part between two lows) has broken off. As the program cannot formulate hypothetical compensation because it is not possible to read the missing part of the bit, the operator must reconstruct the tooth involved, determining its position from the front of the bit and establishing the measurements of the cuts (height from the stem axis). It is possible to reconstruct up to a maximum of 6 teeth on each bit side (fig. 91).

**NOTE:** *always calculate the position of the tooth from STOP 0.*

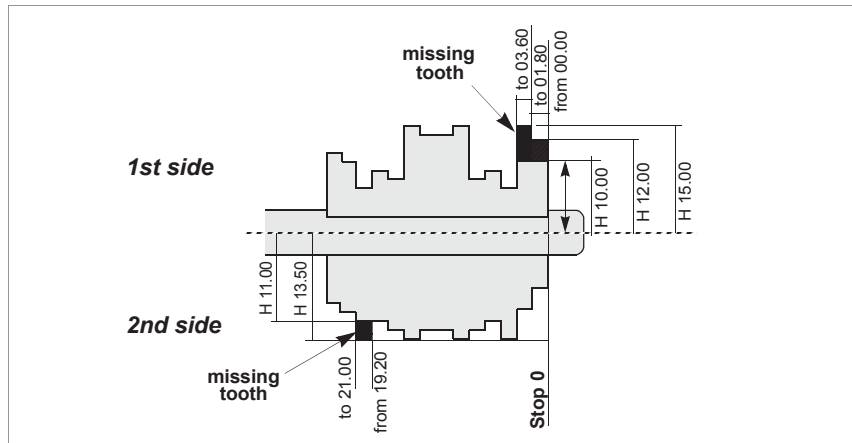


Fig. 91

#### BIT CORRECTION

Select the bit:

- 1 - Bit 1
- 2 - Bit 2

Select BIT 1 for example.

Bit: 1    Tooth: 1  
 From: 0    to: 180  
 Height: 1200  
 Up Down ↑ ↓ [ENTER]

Enter the position "from", "to" and "height" of the tooth and press ENTER to confirm.

Bit: 1    Tooth: 2  
 From: 180    to: 360  
 Height: 1500  
 Up Down ↑ ↓ [ENTER]

Go on to the next tooth by pressing the [arrow Down].  
 Press STOP to quit.

Bit: 2    Tooth: 1  
 From: 1920    to: 2100  
 Height: 1350  
 Up Down ↑ ↓ [ENTER]

Examples:  
Pump keys

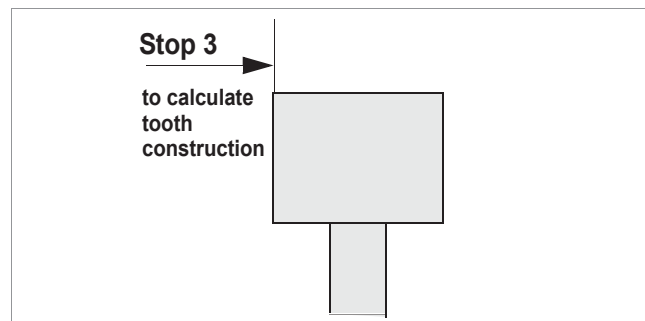


Fig. 92

Square stemmed keys:

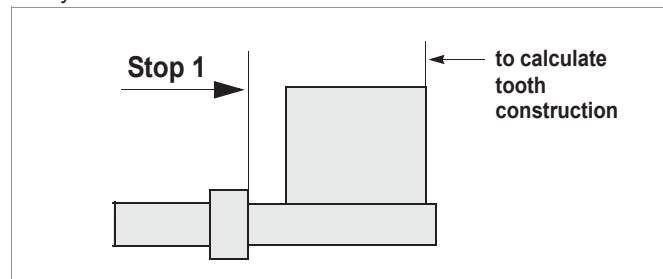


Fig. 93

#### 0 - DELETE EDITING

When a new key is read or the item "0-Delete editing" is selected, all the POST-READING adjustments previously selected can be eliminated.

Delete post-reading adjustments ? No=STOP Yes=ENTER
--

**Stop:** to quit

**Enter:** to continue (confirmation)

## 5.16 DECODE AND COPY

Make a search for the SSN by entering the number corresponding to the system, and confirm with ENTER.

```
SSN = 9          (Decode)
MFG =
=>CISA
CS_CSC
```

or by Make

```
SSN =          (Decode)
MFG = CISA
=>CISA
[04] List = ENTER
```

- press the key [Right-hand arrow] to place the pointer next to the "Make" field.

**It is enough to enter the first letters of the name; the name of the MAKE closest in alphabetical order appears automatically**

- the arrows can be used to scroll the sequence of previous and successive MAKES in alphabetical order.
- use the key [CLEAR] to delete the text entered.
- the last line of the window indicates the result of the search: "[04] List = ENTER": 4 SSN have been found, press [ENTER] to see the list.

```
CISA          [04]
1: 5CS6P - 5CS8P
2: CS-CSC
3: CSL-CSLC-5CS1-5CS2 >>
```

- the symbol >> indicates that there are other systems/locks
- press [arrow Down] to scroll the list and highlight the one required.
- To view further information relating to the SSN listed, hold down the key (Right-hand arrow).**

After selecting the SSN, you will see:

```
DECODE      SSN: 9
             Original on right
Clamp: S100 A-B Stop:0
             [START]
```

**Clamp: S100 A-B** = indicates the clamp (**S100**) into which the key must be fitted, and which jaws to use.  
**Stop: 0** = reference or point for positioning the key in the reading clamp.

Pressing START begins a quick process that reads only the cuts close to the teeth.

```
Decoding in progress
Bit: 1
```

At the end a window appears showing the various cuts deduced from the depths read:

```
Bit 1:2
123*456
Possible depths:
12345#          [7]
```

#. = a fixed tooth

123.. = the symbol for the depth read

[arrow Down] = goes from one bit to the other

CLEAR = delete symbols

It is in any case possible to edit the symbols for the combination before proceeding with the cutting operation.

**NOTE:** see the next Chapter for the cutting sequence.

## 5.17 ENTERING THE CUTS

Make a search for the SSN by entering the number corresponding to the system required, and confirm with ENTER.

SSN = 9	(Cut)
MFG =	
=>CISA	
CS_CSC	

or by Make

SSN =	(Cut)
MFG = CISA	
=>CISA	
[03] List = ENTER	

- press the key [Right-hand arrow] to place the pointer next to the "Make" field.
- It is enough to enter the first letters of the name; the name of the MAKE closest in alphabetical order appears automatically;
- the arrows can be used to scroll the sequence of previous and successive MAKES in alphabetical order.
  - use the key [CLEAR] to delete the text entered.
  - the last line of the window indicates the result of the search: "[04] List = ENTER": 4 SSN have been found, press [ENTER] to see the list.

CISA	[04]
2: 5CS6P - 5CS8P	
3: CS - CSC	
4: CSL-CSLC-5CS1-5CS2	

- the symbol >> indicates that there are other systems/locks
- press [Down arrow] to scroll the list and highlight the item required.
- to view further information relating to the SSN listed, hold down the key (Right-hand arrow).

After selecting the SSN, you will see:

Bit 1: 1	[ ----- ]
...?...	
Possible depths:	
12345#	[7]

or in the case of a double bit:

Bit 1: 2	[ ----- ]
...?...	
Possible depths:	
12345#	[7]

? = indicates a fixed tooth and cannot be edited

123.. = the depth symbols admitted for the selected data card

SHIFT+? = produces the special character # that indicates a depth the same as that of the STEM.

[arrow Down] = goes from one bit to the other

CLEAR = deletes the symbols

[ ----- ] = **ONLY from the box relating to BIT 1** with SHIFT + [arrow Up] to define one of the following characteristics of the key:

SYMMETRICAL	Bits 1 and 2 are the same: when the combination of bit 1 is entered, that for BIT 2 is entered automatically.
-------------	---

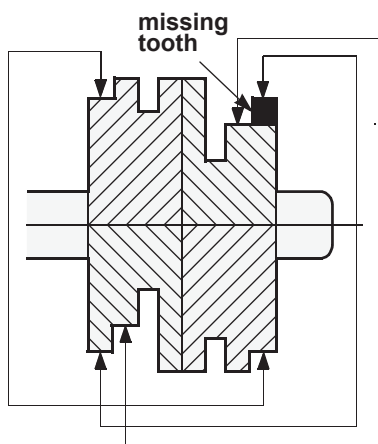


Fig. 94

SPECULAR X	Bits 1 and 2 are specular to X: when the combination of bit 1 is entered, that for BIT 2 is entered automatically.
------------	--

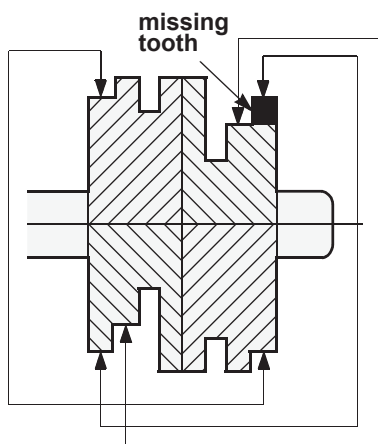


Fig. 95

SPECULAR F-R	Each bit is specular in the direction FRONT-BACK: enter half the cuts for each bit to have the full combination.
--------------	--

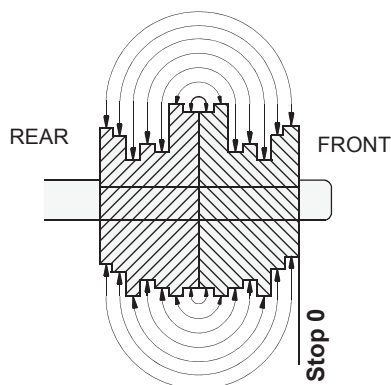


Fig. 96



After entering the cuts for all the bits, go on to cutting.

SSN: 9 M1	Brass
Clamp: S1-K1	Stop: 0
Cutter: 1.25	
Pcs: 1/1	[START]

**M1** = bit 1

**Clamp: S1- K1** = indicates which clamp (**S1**) and tailstock (**K1**) to use for gripping the key.

**Stop 0** = reference or point for positioning the key in the cutting clamp.

**Cutter: 1.25** = thickness of the cutter currently selected (press SHIFT+ENTER to change thickness)

**Brass/Steel** = material of the key (press SHIFT+ ? to change material)

**Pc. 1/1** = enter the number of keys required.

**ATTENTION:** *always check that the wording **BRASS/STEEL** corresponds to the material of the key*

SHIFT+ENTER = used to change the thickness of the current cutter by pressing ENTER against the cutter thickness required:

Choose cutter
1*: PL 1.25
2: PL 1.00
3: PL 1.50

Press STOP to quit.

Press START to begin cutting.

## 5.18 USE OF THE MACHINE WITH A PERSONAL COMPUTER

In the previous pages the IDEA key-cutting machine operations and parts have been presented as a stand alone machine with the data stored in the machine memory.

It is of interest to examine a very important function regarding connection to a PC so that the machine can receive data directly.

The "Silca Keys Program" makes it possible to interface with the IDEA and transmit the cutting data required and selected, through the powerful program made available. It is also possible to store the selected keys in a special work queue (or file) so that they can be transmitted to the machine as soon as it is available.

Each combination sent to the IDEA corresponds to a step in the cutting process for the number of keys entered on the PC.

When the cutting operation is finished for the number of keys set, a '+' sign shows the end of the cycle.

When the IDEA is turned off in the middle of a work queue, the machine stores the status of the work done in its memory.

When the machine is turned on again the unfinished cutting operations will be easily found with the number of keys still to be cut.

**NOTE: the key combinations transmitted by the Personal Computer cannot be altered by the operator.**

### QUEUE FROM PC - 3

Choose the function from the main menu by placing the cursor on 3 "Queue from PC".

0 – Copy from Original
1 – Decode and Copy
2 – Insert the Cuts
<b>3 – Queue from PC</b> >>



001 Codes received	
1 -	[10] 1
2 - AH100	[45] 2
3 - A3456	[67] 3

Analysing the first line in the window above:

1	Progression for codes received
-/+	'-' shows that the 3 keys set have not all been cut '+' shows that the 3 keys set have all been cut
[10]	SSN
1	Number of pieces to cut

Press the [SHIFT+ENTER] + keys to see the 'Data received' list for each code transmitted, which gives other data sent by the PC, such as:

Customer's name	Name of the customer assigned by the PC program in the HISTORIC archive
Art.	Key article

Each key received by the PC has a set quantity (or number of pieces). The machine program decreases the number with every key cut and stores the count in its memory even when the machine is turned off.

For this purpose a [START] key has been added in order to search for the first code in the list with a number of cut keys lower than that set.

### Operational keys

Arrow keys: to scroll the lines.

[SHIFT] + [arrows Up, Down] to scroll 4 lines at a time.

[SHIFT+ENTER] + keys to view customer data and key article for the code selected.

Press ENTER:

Bit 1: 2  
121 21212 121  
Possible depths:  
123456# [1]



Bit 2: 2  
212 21212 212  
Possible depths:  
123456# [1]



SSN: 10 M1 Brass  
Clamp: S1 - K1 Stop: 0  
Cutter: 1.25  
Pcs = 1/ 1 [START]

### KEY DECODING BY PC

With the use of a PC, i. and. with a much more complete collection of data, keys can be decoded as well as cut. (Important: pay attention to the note for fitting the key).

#### SSN. 10

After launching the Silca Keys Program the decoding function for SSN 10, appears on the machine display for a few seconds:

then:

Waiting for  
computer data

DECODE SSN 10  
Original on right  
Clamp:S100 A-B Dist.: 0  
[START]

Press START:

Decoding in progress  
Bit 1

Decoding in progress  
Bit 2

The data relating to key depth are transmitted to the PC for processing only at the end of the decoding cycle.

Decoding OK  
See computer!

## 5.19 USE OF THE MACHINE WITH OPTIKA VIA PC

In addition to the possibility to produce a copy of a key starting from a reading made by the IDEA optic reader, it is also possible to produce a copy of a key starting from a reading made by OPTIKA using the Key Reader Program or Silca key Program.

In the Key Reader Program, the "Copy key" control allows the operator to read the cuts on an original key with the OPTIKA device and automatically forward all the necessary data with which to produce a copy with IDEA.

The job will be received by the machine from the PC queue.

### Note:

The job received in the PC queue will delete any existing job queue.

The OPTIKA device is unable to read cuts on the following types of keys:

- Shoulder stop (mortice)
- Special bit female
- Square stepped tip (FIAM)
- Rear stop
- MUEL pump keys
- Abus
- Abloy
- Tibbe

- When transmission from the PC is over, the job will be viewed in the "PC QUEUE" menu.
- Make sure the job indicates the right type of key to be copied:

1 CODES REC. 1 + OPTIKA      [FAM]
---------------------------------------

*Types of keys legend:*

[FAM] = Bit Stop Male

[FAF] = Bit Stop Female

[POM] = Pump

Press ENTER.

**Note: for male keys with front stop the job received from the OPTIKA device is not complete, the operator must select the right KEY TYPE to copy.**

SELECT TYPE OF KEY - BIT STOP MALE - SQUARE-SQUARE TIP - SQUARE-ROUND TIP - SMALL BIT
---

- Select the KEY TYPE from those shown. The machine will then be able to show the operator the right adapter and download the relative program for cutting the key.
- Fit the key blank in accordance with all the procedures described in the manual for the chosen key type and press START.

## 5.20 GAUGING

### DEFINITIONS

The direction of compensation always refers to the key, of whatever type, or the device to which the compensations are fitted. The reference axes for the direction of compensation are the key axis and stop 0 (tip). Positive compensations cause moving away from the reference zeroes (highest teeth and/or closest to the tip), negative compensations cause moving towards them (lowest teeth and/or farthest from the tip).

Below is described a case of single or double bit keys.

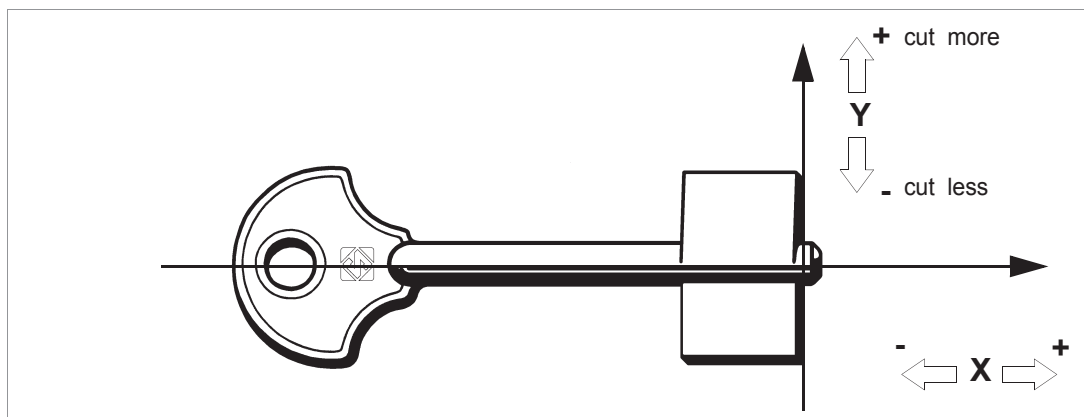


Fig. 97

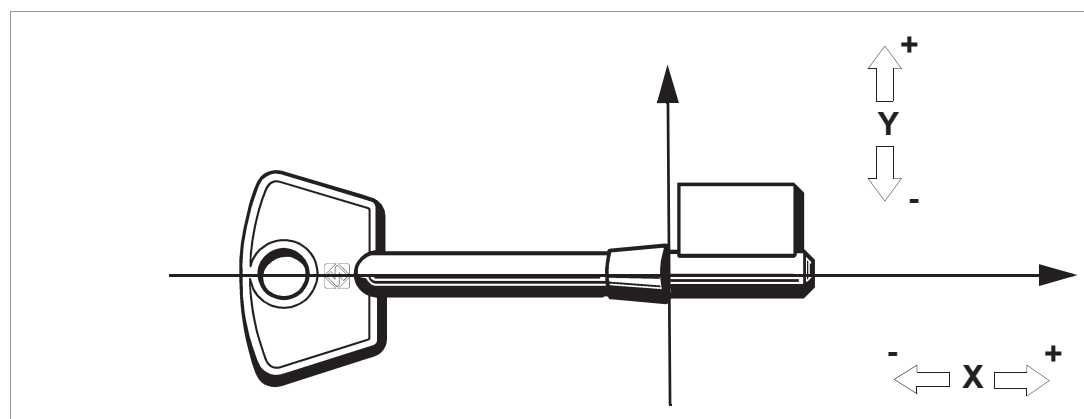


Fig. 98

**NOTE:** *Adjustments to a key held by an adapter are the sum of:*

- *automatic adjustments to the clamp*
- *manual adjustments to the adapter*

**NOTE:** *MANUAL adjustments to the clamp are not considered when there is an ADAPTER fitted.*

Use arrows [up, down] to scroll.

1 - Clamps  
2 - Cutter  
3 - Adapter

Clamps  
1: S1 - Rotating Jaw  
2: S100 - Reader Jaw

Select S1:

Clamps: S1 - K1
Adjustment: B= +000
X=+00 Y1=+06 Y2=+06
To calibrate [START]

**Clamp: S1 - K1** = unit comprising clamp S1 and interchangeable tailstock K1.

**SHIFT+ENTER** = to go to the other interchangeable tailstock used with clamp S1, if applicable.

**START** = press START to begin the automatic gauging procedure for the CLAMP-TAILSTOCK unit, if applicable.

Place the pointer at the side of the parameter to be edited with the arrows or with [ENTER] and edit the parameters using the following keys:

SHIFT + [arrow Up] increases the value within:

**+300 hundredths of a mm or hundredths of a degree (axis B) + 20 cent.mm X/Y1/Y2**

SHIFT + [arrow Down] decreases the value within:

**- 300 hundredths of a mm or hundredths of a degree (axis B) -20 cent.mm. X/Y1/Y2**

CLEAR to zero the value

[ENTER] in the last field is used to quit the window and show the message requiring the editing to be saved:

Save adjustment ? No=STOP Yes=ENTER
---

**ATTENTION:** when [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid

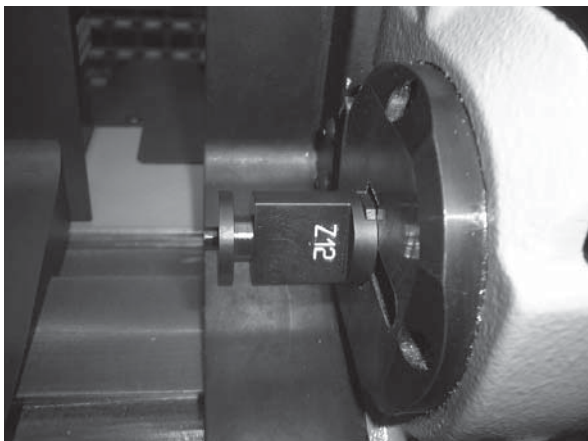
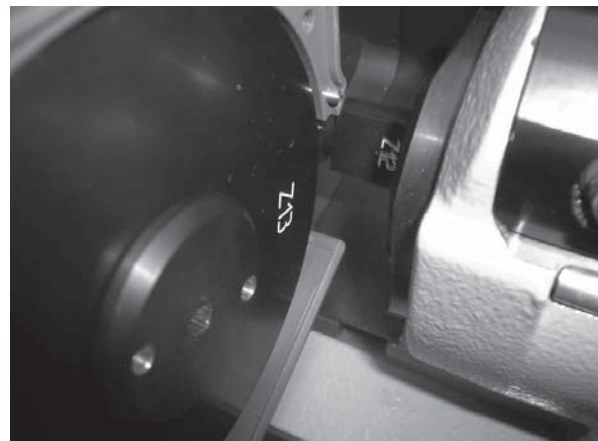


Fig. 99



Select S100

Clamp: S100
Adjustments:
X=+04 Y1=+04 Y2=+04

**FOR K2 TAILSTOCK:**

Clamps: S1 - K1 >>
Adjustments: B=+000
X=+00 Y1=+00 Y2=+00
To calibrate [START]

- Press [SHIFT + ENTER]

**Clamp: S1 - K1** = unit comprising the S1 clamp and K1 interchangeable tailstock.

**>>** = press [SHIFT+ENTER] to go to the other interchangeable tailstocks used with the S1 clamp, if applicable.

**Clamp: S1 - K2** = unit comprising the S1 clamp and K2 interchangeable tailstock

Clamps: S1 - K2
Adjustments: B=+000
X=+00 Y1=+00 Y2=+00
To calibrate [START]

**START**= press START to begin the automatic gauging procedure for the CLAMP TAILSTOCK unit.

Clamps: S1 - K2
Install Z15 and Z13
See operating manual
[START]

**Template Z13** = fit in place of the cutter (fig. 100).

**Template Z15** = fit on the S1-K2 clamp as if it were a key (fig. 100). Use the plate (P) as a point of reference in position 2 with the second pin on the template up against it. Tighten the screw (W2) with the (T4) wrench. Replace the (T4) wrench in its seat.

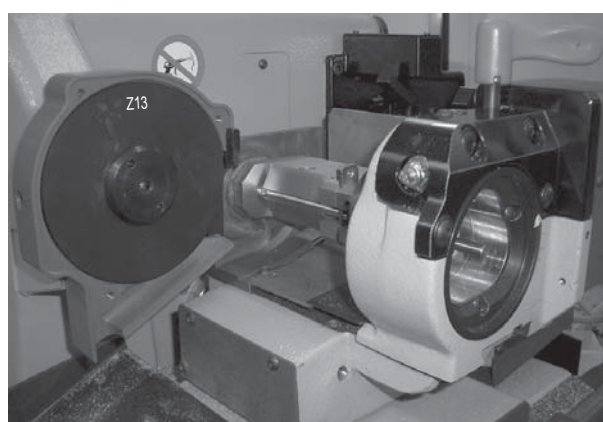
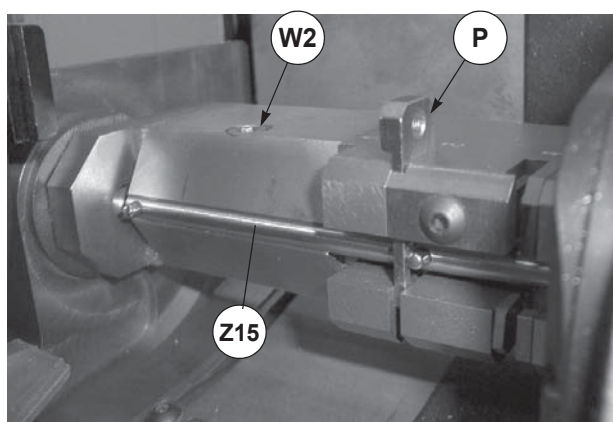


Fig. 100

Press START

Clamps: S1 - K2
Detection
In progress

Clamps: S1 - K2
Adjustments: B=+000
X=+02 Y1=+02 Y2=+04
To calibrate [START]

Position the pointer at the side of the parameter to be edited with the arrow keys or [ENTER] and use the following keys to edit the parameters:

[SHIFT] + [arrow up]: increases the value within + 300 hundredths of a mm or hundredths of a degree (axis B) + 20 cent.mm X/Y1/Y2

[SHIFT] + [arrow down]: decreases the value within - 300 hundredths of a mm or hundredths of a degree (axis B) - 20 cent.mm X/Y1/Y2

[CLEAR]: to zero the value

[ENTER]: in the last field to quit the window so that the query Save? appears for the edited data:

Save
adjustment ?
No=STOP Yes=ENTER

**ATTENTION:** if [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.



## 5.21 CUTTERS

Scroll with the arrows.

Cutter
1: PL 1.25 (0.492)
2: PL 1.00 (0.393)
3: PL 1.50 (0.590)
4: PL 1.70 (0.669)
5: PL 1.90 (0.748)
6: PL 2.00 (0.787)

[ENTER] = to view the cutter parameters.

SHIFT + [ENTER] = to set the current cutter.

\* = shows the cutter currently selected

01*- PL 1.25
Thickness: 125
Diameter: 10000
Adjust. Diam.: +00

SHIFT + [arrow Up ] increases the diameter within +20 hundredths of a mm

SHIFT + [arrow Down] decreases the diameter within - 20 hundredths of a mm

CLEAR to zero the value

[ENTER] in the last field is used to quit the window and show the message requiring the editing to be saved:

Save
adjustments ?
No=STOP Yes=ENTER

**ATTENTION:** when [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.

## 5.22 ADAPTERS

Scroll with the arrows.

Adapters	
1:	E1 - Mortice
1:	E2 - Bit Stop Female
3:	E3 - Pump (cutting)
4:	E4 - Muel (Cutting)
5:	E5 - Fiam (cutting)
6:	E6 - Fiam (reading)
7:	E7 - Pump (reading)
8:	E8 - Muel (reading)
9:	E9 - Chubb RKS (C)
10:	E9 - Chubb RKS (R)
11:	E10 - Small Bit (C)
12:	E11 - Rear Stop (R)
13:	E15 - Special Bit F (C)
14:	E16 - Special Bit F (R)

[ENTER] = to view the adapter parameters.

Adapter <b>E1</b>	
Side: cutting	
Adjustments: B=+00	
X=+00	Y1=+00 Y2=+00

Save adjustments ?	
No=STOP	Yes=ENTER

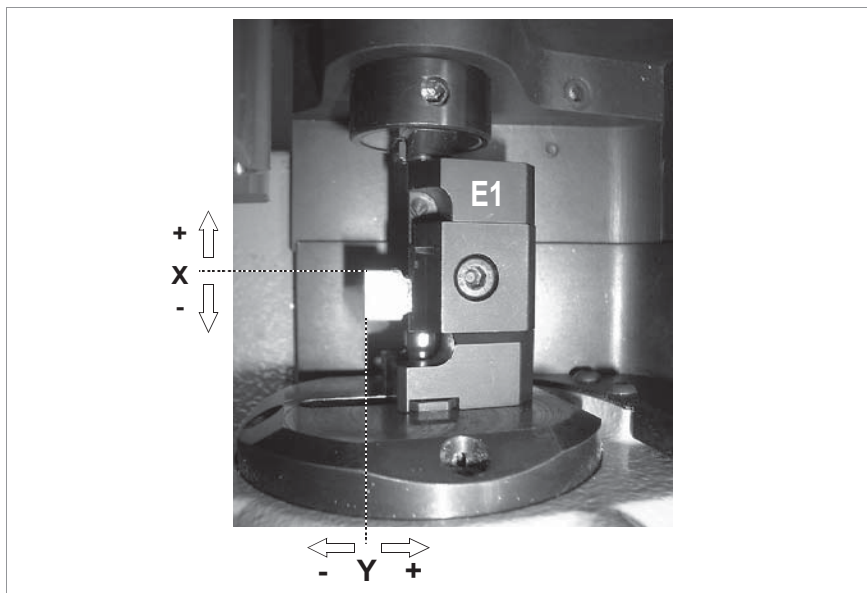


Fig. 101

SHIFT + [arrow Up] increases the value within:

**+300 hundredths of a mm or hundredths of a degree (axis B) X/Y1/Y2 = +20 cent.**

SHIFT + [arrow Down] decreases the value within:

**- 300 hundredths of a mm or hundredths of a degree (axis B) X/Y1/Y2 = - 20 cent.**

CLEAR to zero the value

[ENTER] in the last field is used to quit the window and show the message requiring the editing to be saved:

Example:

Adapter **E2**  
Side: cutting  
Adjustment: B=+00  
X=+00 Y1=+00 Y2=+00

Save  
adjustment ?  
No=STOP Yes=ENTER

**ATTENTION:** when [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.

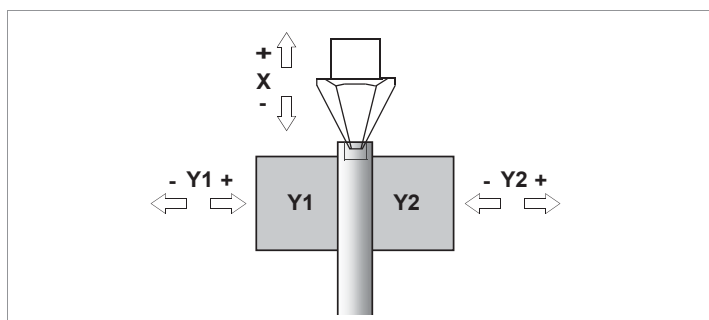


Fig. 102

Example:

Adapter **E3**  
Side: cutting  
Adjustment: B=+00  
X=+00 Y1=+00 Y2=+00

Save  
adjustment ?  
No=STOP Yes=ENTER

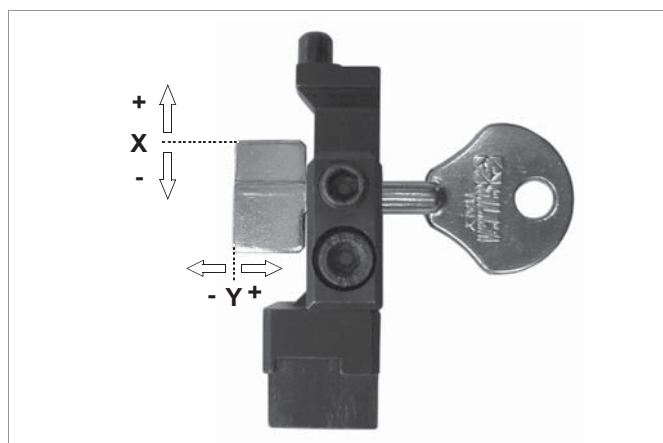


Fig. 103

Example:

<p>Adapter <b>E4</b>  Side: reading  Correzioni:  X=+00 Y1=+00 Y2=+00</p>
<p>Salvare  le correzioni ?  No=STOP Si=ENTER</p>

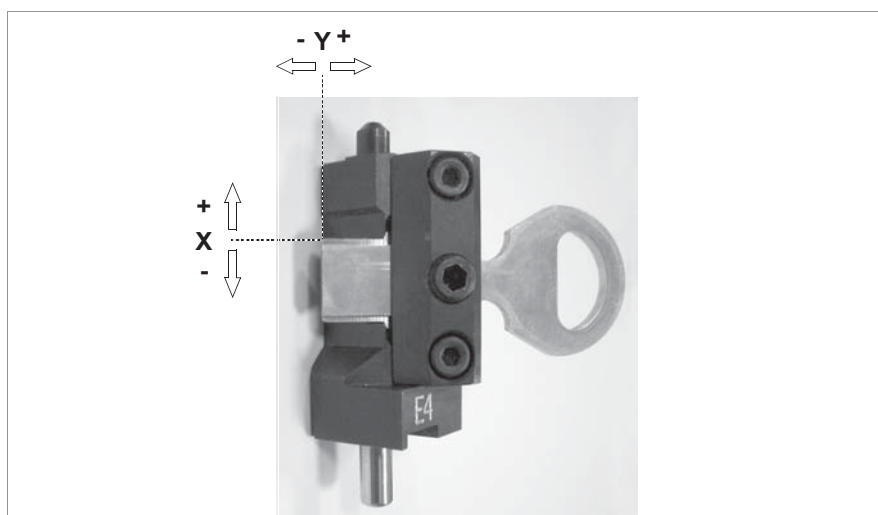


Fig. 104

Example:

<p>Adapter <b>E5</b>  Side: cutting  Adjustment: B=+00  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustment ?  No=STOP Yes=ENTER</p>

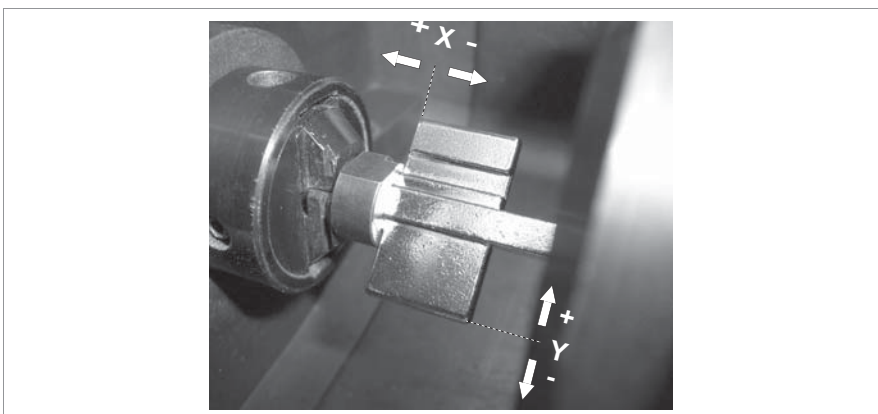


Fig. 105

Example:

<p>Adapter <b>E6</b>  Side: reading  Adjustment:  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustment ?  No=STOP Yes=ENTER</p>

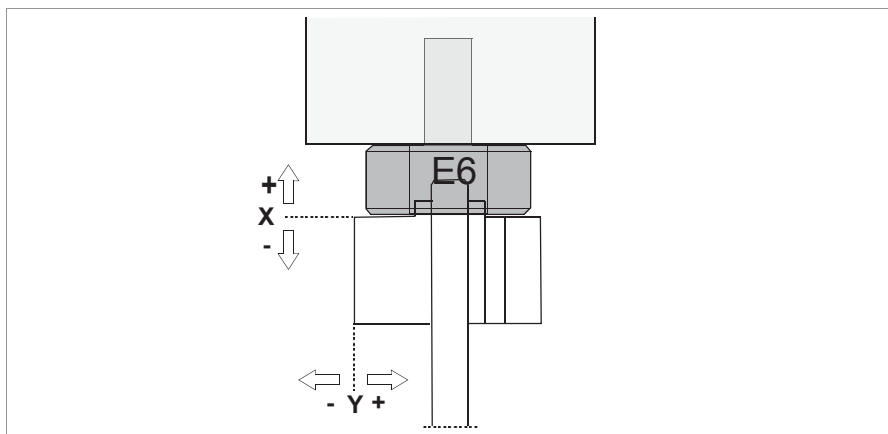


Fig. 106

Example:

<p>Adapter <b>E7</b>  Side: reading  Adjustments:  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustment ?  No=STOP Yes=ENTER</p>

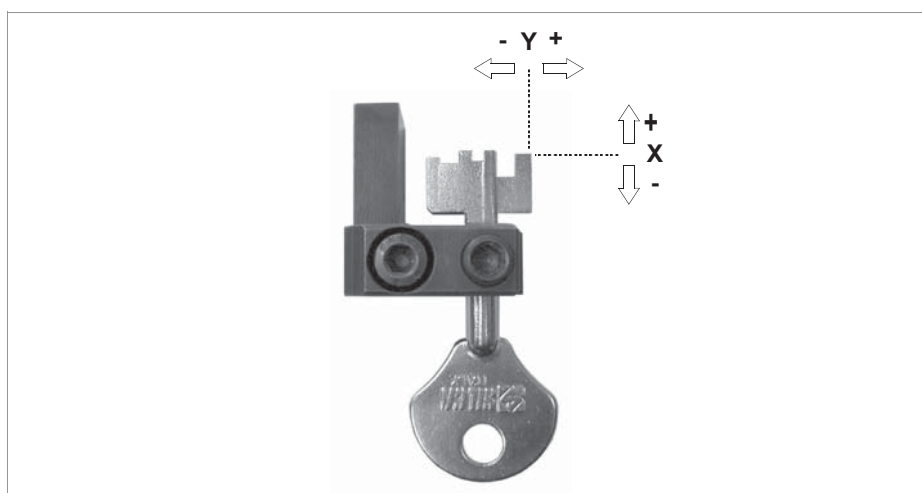


Fig. 107

Example:

<p>Adapter <b>E8</b>  Side: reading  Correzioni:  X=+00 Y1=+00 Y2=+00</p>
<p>Salvare  le correzioni ?  No=STOP Si=ENTER</p>

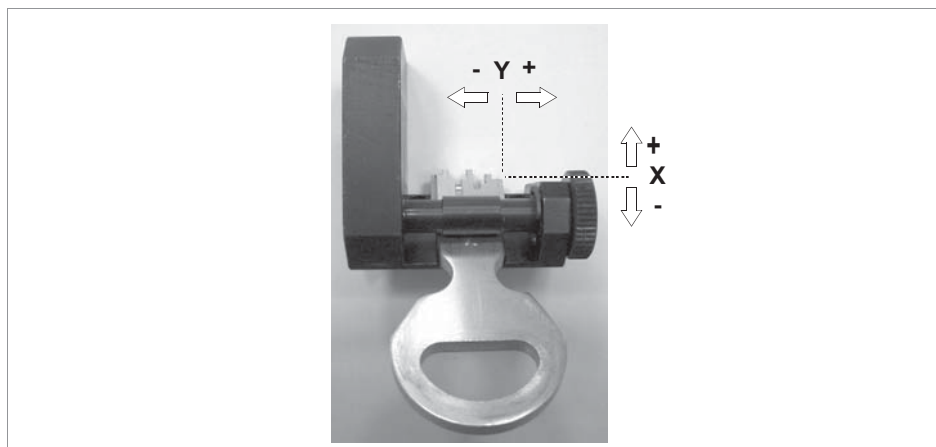


Fig. 108

Example:

<p>Adapter <b>E9</b>  Side: cutting  Adjustment: B=+00  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustment ?  No=STOP Yes=ENTER</p>

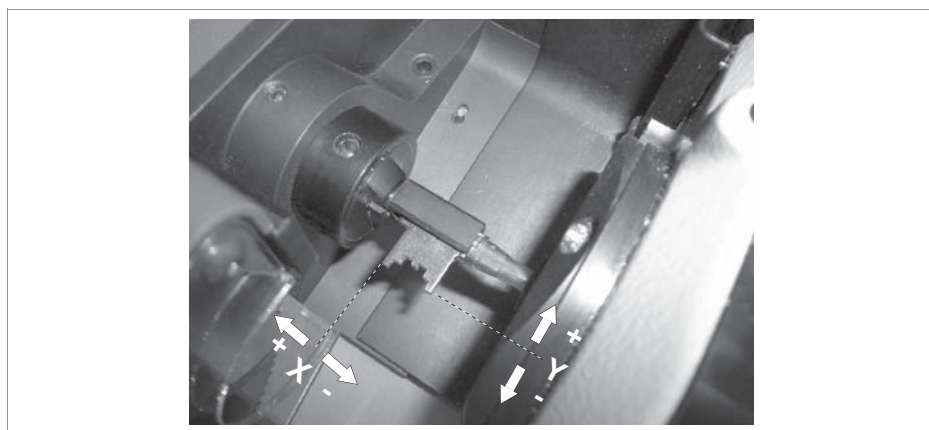


Fig. 109

Example:

<p>Adapter <b>E9</b>  Side: reading  Adjustments:  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustements ?  No=STOP Yes=ENTER</p>

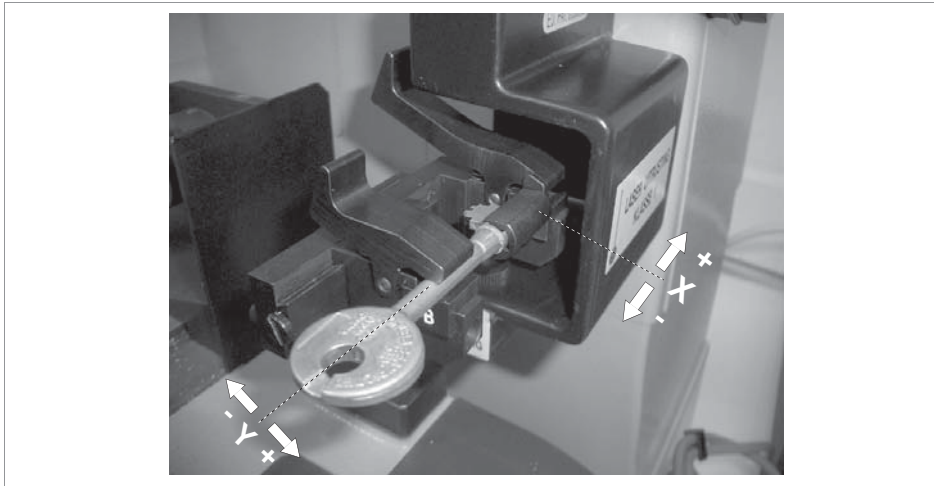


Fig. 110

Example:

<p>Adapter <b>E10</b>  Side: cutting  Adjustments:  X=+00 Y1=+00 Y2=+00</p>
<p>Save  adjustements ?  No=STOP Yes=ENTER</p>

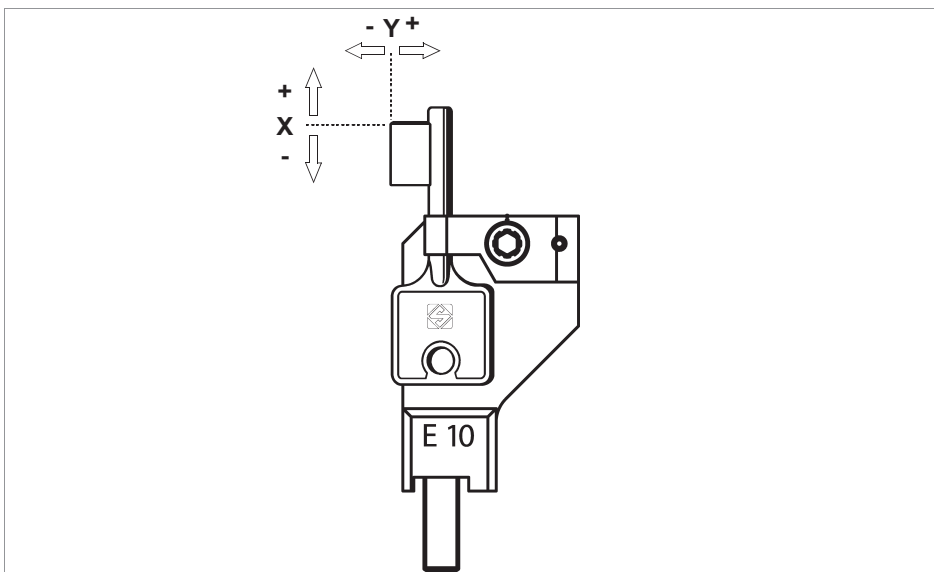


Fig. 111



Example:

Adapter **E11**  
 Side: reading  
 Adjustments:  
 X=+00 Y1=+00 Y2=+00

Save  
 adjustments ?  
 No=STOP Yes=ENTER

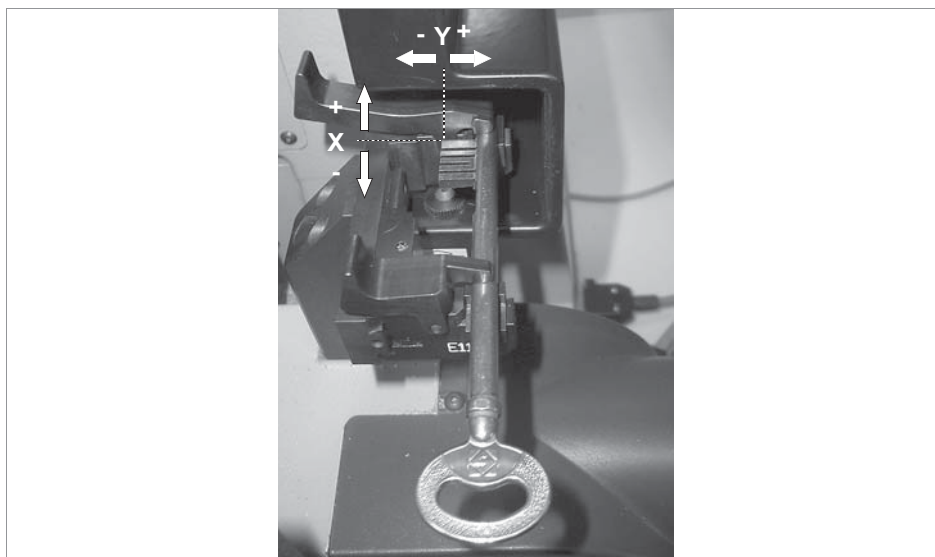


Fig. 112

Example:

Adapter **E15**  
 Side: cutting  
 Adjustments:  
 X=+00 Y1=+00 Y2=+00

Save  
 adjustments ?  
 No=STOP Yes=ENTER

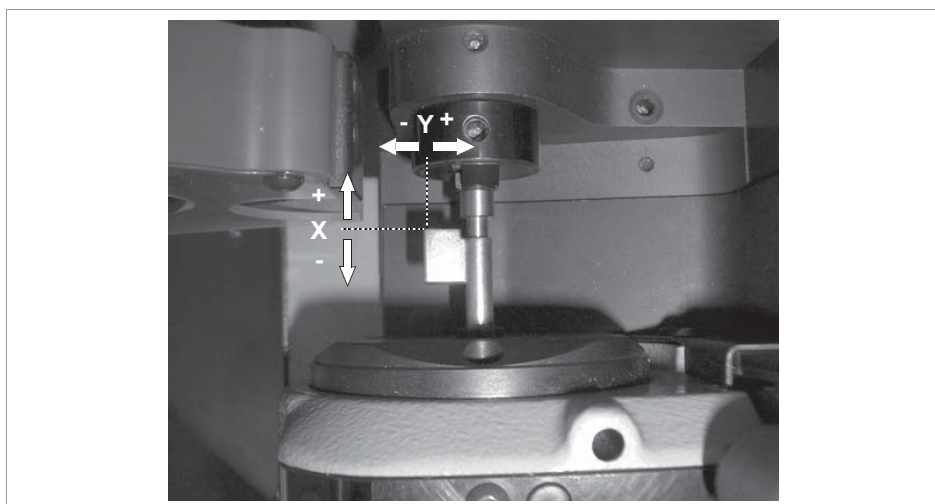


Fig. 113

Example:

Adapter **E16**  
Side: reading  
Adjustments:  
X=+00 Y1=+00 Y2=+00

Save  
adjustements ?  
No=STOP Yes=ENTER

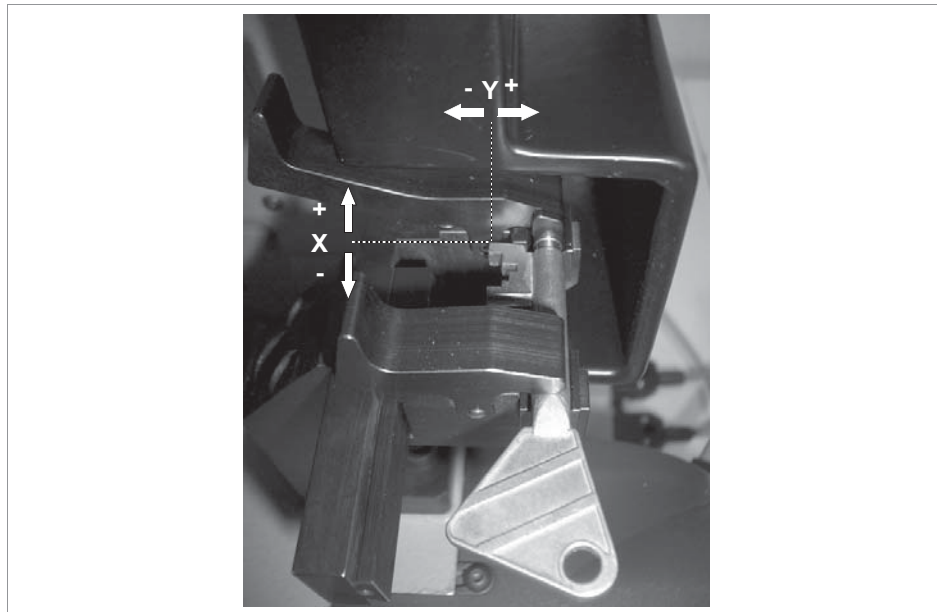


Fig. 114

## 6 MAIN MENU TEST FUNCTIONS

1 - Machine zero points
2 - Test

### *TEST*

1 - Optical reader
2 - X axis motor
3 - Y axis motor
4 - B axis motor
5 - Cutter motor
6 - X axis sensor
7 - Y axis sensor
8 - B axis sensor
9 - X axis photocell
10 - Y axis photocell
11 - (T) wrench micro
12 - Protective shield microsw.
13 - Electric contact
14 - Keypad
15 - Display
16 - Clamp Code
17 - Inlets
18 - Outlet 1
19 - Outlet 2
20 - Outlet 3
21 - Outlet 4
22 - Serial port

## 6.1 TEST

A TEST menu is incorporated in the machine, provided for finding faults and making checks.

1 - Machine zero points  
**2 - Test**

**ATTENTION:** this “Test” chapter serves as a check on any errors/anomalies that could occur on the machine (ch. 7.1, page 119).

From the main menu choose the function by placing the pointer on “5 - Maintenance”.

0 – Copy from Original  
 1 – Decode and copy  
 2 – Insert the Cuts  
 3 – Queue from PC    >>



4 – Calibrations  
**5 – Maintenance**  
 6 – Options



Select “2 - Test”.

1 – Machine zero points  
**2 – Test**



- **Test 1: OPTICAL READER**

Carefully follow the instructions that are on the machine's display. Check that the optical reader's status changes from OFF to ON.

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

- **Test 2: X AXIS MOTOR**

Carefully follow the instructions on the display and check that the X axis carriage moves.

**ATTENTION:** during this test all the end of run controls are disabled; avoid moving the carriage up against its mechanical stops.

**NOTE:** if the motor does not start, contact Silca's Technical Assistance Dept.

- **Test 3: Y AXIS MOTOR**

Carefully follow the instructions on the display and check that the Y axis carriage moves.

**ATTENTION:** during this test all the end of run controls are disabled; avoid moving the carriage up against its mechanical stops.

**NOTE:** if the motor does not start, contact Silca's Technical Assistance Dept.

- **Test 4: B AXIS MOTOR**

This Test can be carried out only when the S1 clamp is installed on the machine.

- **Test 5: CUTTER MOTOR**

Carefully follow the instructions on the display and check that the cutter motor works.

- The test is OK if speed is approximately 2880.
- If the cutter is turning and the display shows a speed of "0", the motor photocell is faulty and must be replaced.

---

**NOTE:** if the cutter motor does not start, contact Silca's Technical Assistance Dept.

---

- **Test 6: X AXIS SENSOR**

- the machine's display should show ON when the carriage is drawn away from the machine (towards the operator).
- the machine's display should show OFF when the carriage is pushed all the way in towards the machine.

---

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

---

- **Test 7: Y AXIS SENSOR**

- the machine's display should show OFF when the carriage is moved all the way to the right.
- the machine's display should show ON when the carriage is moved all the way to the left.

---

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

---

- **Test 8: B AXIS SENSOR (rotating)**

- with rotation in the standard position the display shows OFF.
- using a screwdriver to turn screw (M7) (fig. 145, page 128) clockwise the display goes to ON.

- **Test 9: X AXIS PHOTOCCELL**

Slowly push the X axis carriage manually towards the machine's chassis checking that the machine's display indicates ON to OFF.

---

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

---

- **Test 10: Y AXIS PHOTOCCELL**

Slowly push the Y axis carriage manually from its right all the way to its left checking that the machine's display indicates ON to OFF.

---

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

---

- **Test 11: (T) WRENCH MICRO**

Carefully follow the instructions that are on the machine's display. Check that the status changes from OFF to ON.

---

**NOTE:** if the OFF/ON transition is not made, contact Silca's Technical Assistance Dept.

---

- **Test 12: PROTECTIVE SHIELD MICROSWITCH**

Raise and lower the protective shield, checking that the machine display shows first OFF then ON.

- **Test 13: ELECTRIC CONTACT**

Use any metal conductor to create a connection between the cutter and the clamp, checking that the machine display shows first OFF then ON.

- **Test 14: KEYBOARD**

One at time, press all the keys (except STOP) checking that an asterisk (\*) appears for each key pressed. Press the STOP key for last.

- **Test 15: DISPLAY**

All points on the display should be obscured.

- **Test 16: CLAMP CODE**

Check on the display that Ø:ON is code:1.

- **Test 17: INLETS**

To use the test properly, consult the literature provided with the specific optional accessories.

- **Test 18: OUTLET 1**

To use the test properly, consult the literature provided with the specific optional accessories.

- **Test 19: OUTLET 2**

To use the test properly, consult the literature provided with the specific optional accessories.

- **Test 20: OUTLET 3**

To use the test properly, consult the literature provided with the specific optional accessories.

- **Test 21: OUTLET 4**

To use the test properly, consult the literature provided with the specific optional accessories.

- **Test 22: SERIAL PORT**

Check that the machine display shows OFF.

Fit the special serial test connector (Z4) provided to the machine serial port, checking that the display shows first OFF then ON.

### 6.1.1 Machine zero points

With the use of regulating templates (ch. 1.5, page 10) the machine provides a 'self-setting' procedure. These procedures must be carefully carried out following the descriptions and illustrations indicated below.

EVENT	MACHINE ZEROES		CALIBRATING	
	CUTTING UNIT	READING UNIT	CLAMPS	CUTTERS
Replacement of photocells	YES	YES	NO	NO
Replacement of the electronic board	YES	YES	YES	YES
Replacement of the Optical Reader unit	NO	YES	NO	NO
Replacement of sensors	YES	YES	YES	YES
Replacement of the cutter shaft	YES	YES	NO	NO
Replacement of the ball screws	YES	YES	NO	NO

#### PRELIMINARY OPERATIONS

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the back panel (ch. 7.8, page 126).
- 3) loosen the (G1) and (G2) grub screws that secure the X axis photocell disk (fig. 115).
- 4) remove the bottom panel (ch. 7.9, page 126).
- 5) disconnect the (J1) Y axis cable from the carriage (fig. 116).
- 6) unscrew the 3 (B5) fixing screws and remove the Y axis protective cover by pulling it in the direction shown in fig. 116.
- 7) loosen the (G3) and (G4) grub screws that secure the Y axis photocell disk (fig. 118, page 91).
- 8) plug the Y axis (J1) cable (fig. 116) and the machine's power supply cable back into place.
- 9) turn the machine on and carry on with the procedures described on page 90.

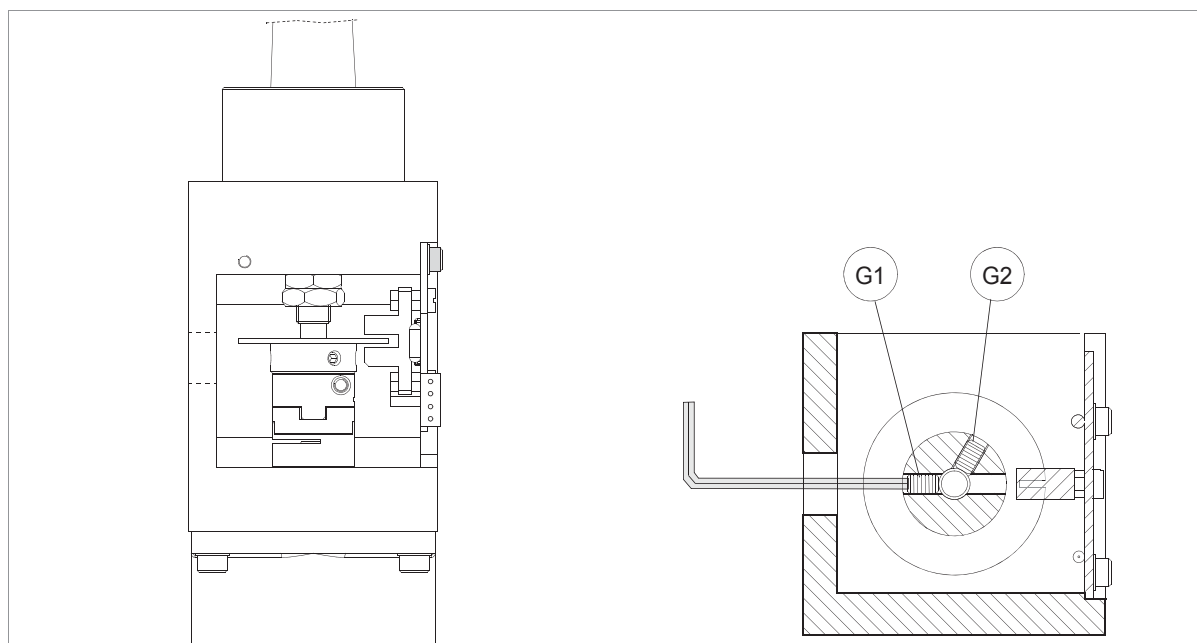


Fig. 115



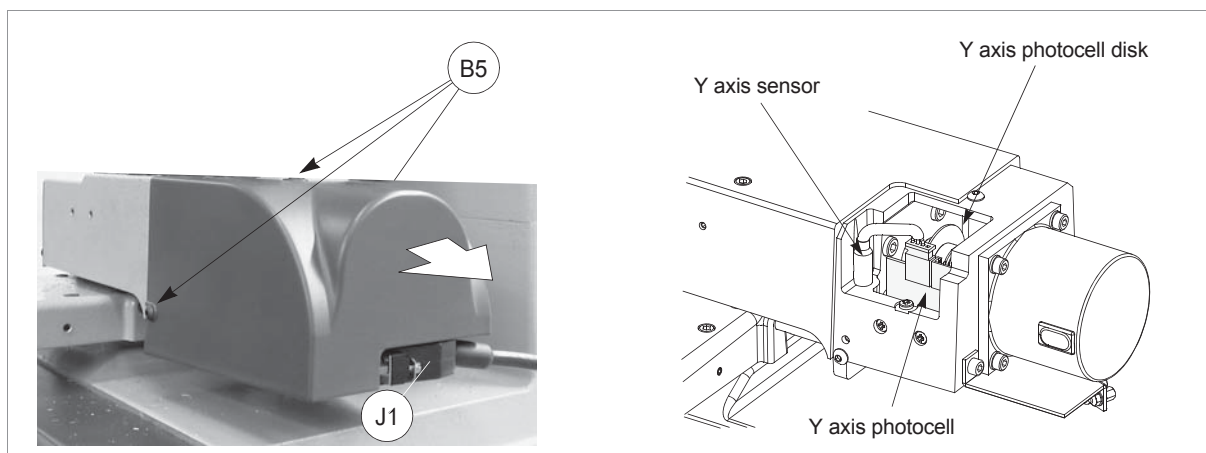


Fig. 116

**CUTTING UNIT**

1) enter the "Maintenance" #5.

2) select "Machine zero points" #2.

**Operational keys:**

use the ▼▲ arrow keys to move the cursor to the option required and press ENTER or directly press the numbered key corresponding to the option number.

3) select 'Cutting unit' #1.

4) insert the (Z12) template (fig. 99, page 74).

5) remove the cutter and insert the (Z13) template into place (fig. 99).

6) manually move the X and Y axis up until the (Z12) and (Z13) templates make contact (fig. 117).

7) lower the protective shield and press START.

**ATTENTION:** check that both the (Z13) and (Z12) templates make perfect contact. If this does not occur the display will show an error message.

4 - Calibrations  
**5 - Maintenance**  
 6 - Options

1 - Test  
**2 - Machine '0' point**

**1 - Cutting unit**  
 2 - Reading unit

ENTER

Install Z12 & Z13  
 templates.  
 See operating manual.  
 [ENTER]

ENTER

Move axis  
 up until contact is made  
 See operating manual.  
 [START]

START

ERROR 10  
 No contact made.  
 See operating manual.

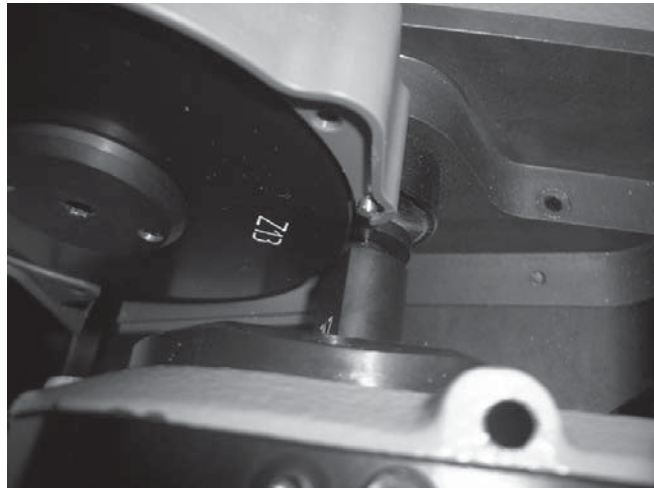


Fig. 117

- the machine will take the X and Y axes to a predefined position.
- the operator must manually rotate the X and Y photocell disks up until the cut in the disks face the photocells card.

**Y axis photocell:**

- manually turn the Y axis disk (fig. 118) up until the display's description changes from OFF to ON.
- use the provided allen key to tighten the (G3) grub screw (fig. 118).

**X axis photocell:**

- manually turn the X axis disk (fig. 115, page 89) up until the display's description changes from OFF to ON.
- use the provided allen key to tighten the (G1) grub screw (fig. 115).

- 8) lower the protective shield.
- 9) press START.
- the machine goes on to a new position and is ready for regulating the sensors.

START

Pos. Photocell.  
**TZX=OFF TZY=OFF**  
 See operating manual.  
 [START]

Pos. Photocell.  
**TZX=OFF TZY=ON**  
 See operating manual.  
 [START]

Pos. Photocell.  
**TZX=OFF TZY=OFF**  
 See operating manual.  
 [START]

Pos. Photocell.  
**TZX=ON TZY=ON**  
 See operating manual.  
 [START]

START

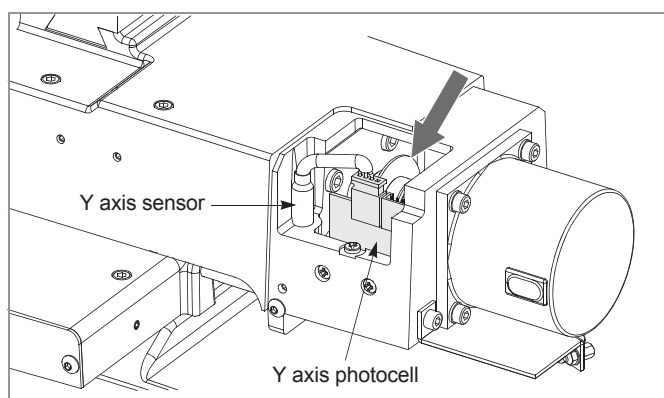
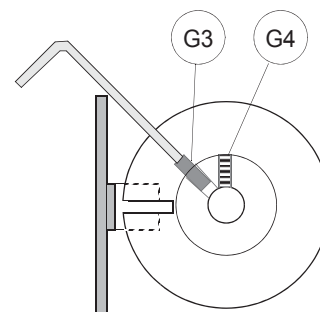


Fig. 118



**Regulating the Y axis sensor:**

- raise the protective shield.
- use the provided allen key to loosen the (C1) grub screw; manually rotate the (C2) rod (fig. 119) in both directions up until the changeover point from OFF to ON is found.
- tighten the (C1) grub screw to secure the rod.

START

Pos. sensors.  
ICX=OFF **ICY=OFF**  
See operating manual.  
[START]

Pos. sensors.  
ICX=OFF **ICY=ON**  
See operating manual.  
[START]

**Regulating the X axis sensor:**

- carefully tip the machine over.
- remove the bottom panel by unscrewing all 8 securing screws.
- loosen the (C3) screw (fig. 120) that secures the sensor support plate. Manually move the sensor up until the display's description goes from OFF to ON.
- tighten the (C3) screw to secure the plate back into place.
- re-position the machine back on its workbench and lower the protective shield.
- press START.

Pos. sensors.  
**ICX=OFF** ICY=OFF  
See operating manual.  
[START]

Pos. sensors.  
**ICX=ON** ICY=ON  
See operating manual.  
[START]

START

Zero detection  
in progress!

- 10) when the operation has been completed, the display will show the measured quotes.
- 11) press ENTER to save
- 12) manually turn the Y axis disk to get access to the (G4) grub screw (fig. 118).
- 13) manually turn the X axis disk to get access to the (G2) grub screw (fig. 118).

Measured quotes:  
X=4444 Y=3333  
Save measurements?  
No=STOP Yes=ENTER

ENTER

**ATTENTION:** if the STOP key is pressed, the new settings will be lost. If so, only the previous setting values will remain valid.

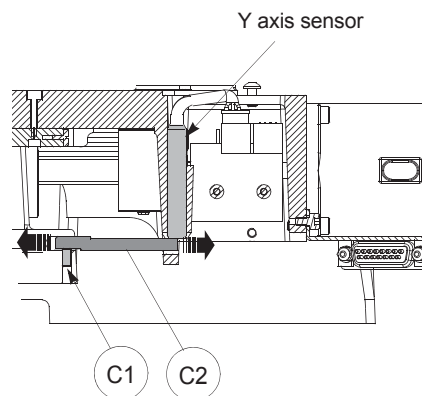


Fig. 119

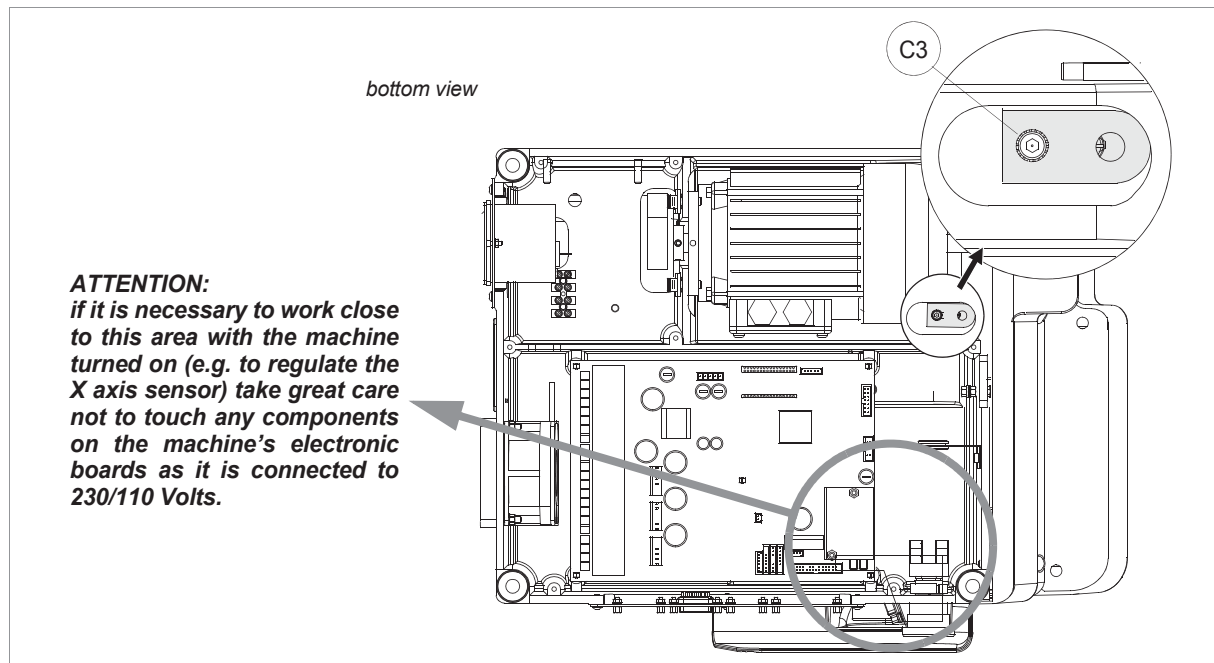


Fig. 120

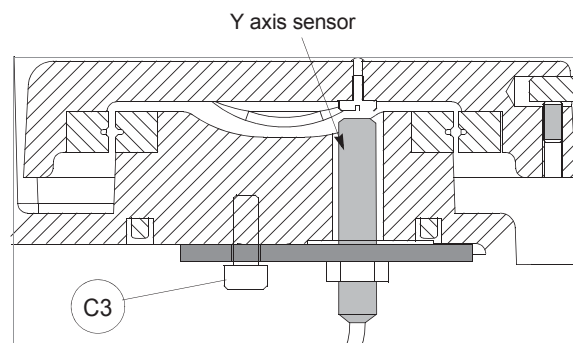


Fig. 121

**READING UNIT****Operational keys:**

use the ▼▲ keys to move the cursor to the option required and press ENTER or directly press the numbered key corresponding to the option number.

1) enter the 'Maintenance' menu #5.

2) select 'Machine zero points' #2.

3) select 'Reading unit' #2.

4) install the (Z14) template.

- install A and B clamps (S100)

4 - Calibrations  
**5 - Maintenance**  
6 - Options

1 - Test  
**2 - Machine '0' point**

1 - Cutting unit  
**2 - Reading unit**

Install A & B clamps  
and Z14 template  
See operating manual.  
[START]

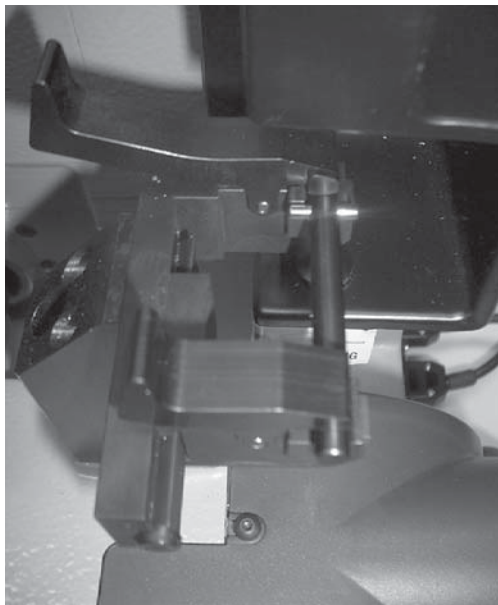


Fig. 122

5) lower the protective shield and press START.

- the 'machine's zero' settings are detected by the optical reader.
- when this operation is completed, the machine's display will show the measured quotes

**ATTENTION:** if the **STOP** key is pressed, the new settings will be lost. If so, only the previous setting values will remain valid.

START

Zero detection  
in progress!

Measured quotes:  
X=4444 Y=3333  
Save measurements?  
No=STOP Yes=ENTER

ENTER

***DIMENSION CHECK – CUTTING TEST***

To check the machine's precision, proceed as follows:

0 - Copy from Original
1 - Decode and Copy
<b>2 - Insert cuts</b>
3 - Queue from PC >>

Choose "2 Insert cuts" from the main menu and press ENTER.

SSN = 10 (Cut)
Make =
= CISA
CSL-CSLC-5CS1-5CS2

Choose SSN = 10 and press ENTER.

Bit 1: 2 (Symm. F-R)
# #
Possible depths
123456# (1)

Enter the depth for bit 1 as in the example:

Bit 1: 2 (Symm. F-R)
111#66666#111
Possible depths
123456# (8)

Press ENTER

Bit 2: 2 (Symm. F-R)
...#...#...
Possible depths
123456# (1)

Enter the depth for bit 2 (the same as bit 1) as in the example:

Bit 2: 2 (Symm. F-R)
111#66666#111
Possible depths
123456# (8)

Press ENTER

SSN: 10 M1 Brass
Clamp: S1 – K1 Stop: 0
Cutter: 1.25
Pz. 1 / 1 (START)

Fit the key blank into the clamp S1, then press START.

Cutting in progress
Copy: 1 of: 1
Bit 1

Cutting in progress
Copy: 1 of: 1
Bit 2

Copy 1 of 1
finished
More copies ?
No=STOP Yes=ENTER

Press STOP, remove the key and use a centesimal gauge to measure it.

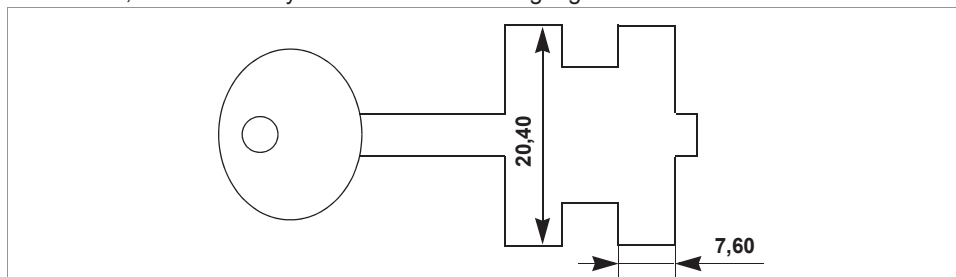


Fig. 123

Measurement X should be 7,60 mm (...inch), +/- 0,03 mm  
 Measurement Y (Y1+Y2) should be 20,40 mm (...inch) +/- 0,03 mm  
 If this is not the case, e.g. X = 7,70 and Y = 20,30 proceed as follows:

**4 - Calibrations**

- 5 - Maintenance
- 6 - Options

Choose "4 Calibrations" from the main menu and press ENTER.

**1 - Clamps**

- 2 - Cutters
- 3 - Adapters

Choose "1 Clamps" and press ENTER.

**Clamps**

- 1: S1 - Rotating Jaw**
- 2: S100 - Reader Jaw

Choose "1 S1 - Rotating" and press ENTER.

Clamp: S1 - K1

Adjustments: B=+00

X= +10 Y1= +0,5 Y2= +0,5

To calibrate (START)

Digit the corrections required for axis X and axis Y (bit 1 = Y1 / bit 2 = Y2). Press ENTER.

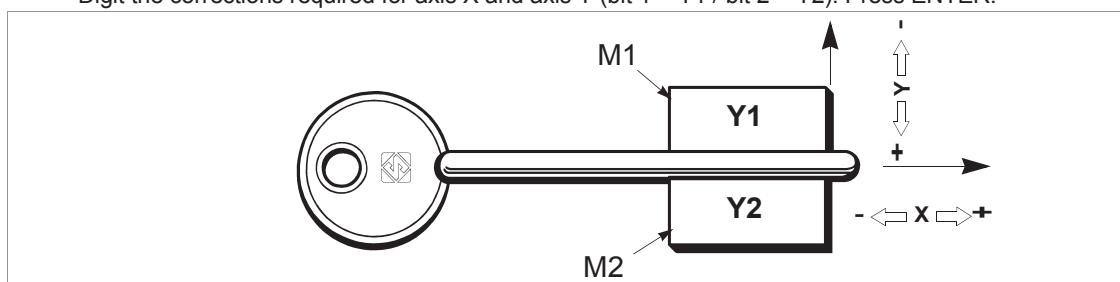


Fig. 124

Save

adjustment?

No=STOP Yes =ENTER

Press ENTER to confirm the data.



***DIMENSION CHECK WITH COPY FROM ORIGINAL***  
**(after the Cutting Test)**

After carrying out the Cutting Test, proceed as follows:  
 Choose 0 "Copy from Original" from the main menu and press ENTER.

0 - Copy from Original
1 - Decode and Copy
2 - Insert cuts
3 - Queue from PC >>

Choose 0 "Bit stop M" and press ENTER.

SELECT TYPE OF KEY
<b>0 - Bit stop male</b>
1 - Bit stop female
2 - Shoulder stop

Choose 1 "Reading + Cutting" and press ENTER.

<b>1 - Reading + Cutting</b>
2 - Cutting only
3 - Reading only
4 - Post-Reading adj.

Follow the instructions on the display.

KEY READING
Original on right
Clamp: S100 A-B Stop: 0
(START)

Press START.

Reading in progress....
-------------------------

Date processing
in progress
Please wait...

Follow the instructions on the display.  
 Fit the key blank into the clamp S1, then press START.

Left blank	Brass
Clamp: S1-K1	Stop: 0
Cutt.: 1.25	
Pcs = 1/1	(START)

Press ENTER

Cutting in progress
Copy: 1 of: 1

Copy 1 of 1
finished
More copies?
No=STOP Yes=ENTER

Press STOP, remove the key and use a centesimal gauge to measure it.

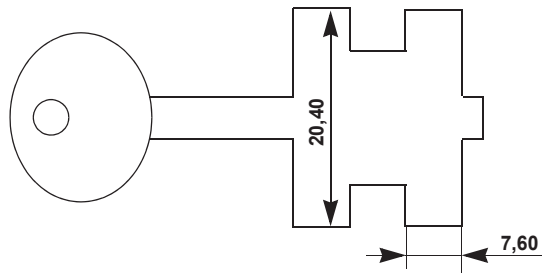


Fig. 125

Measurement X should be 7,60 mm (...inch), +/- 0,03 mm  
 Measurement Y (Y1+Y2) should be 20,40 mm (...inch) +/- 0,03 mm

If this is not the case, e.g. X = 7,50 and Y = 20,50 proceed as follows:

**4 - Calibrations**  
 5 - Maintenance  
 6 - Options

Choose "4 Calibrations" from the main menu and press ENTER.

**1 - Clamps**  
 2 - Cutters  
 3 - Adapters

Choose "1 Clamps" and press ENTER.

Clamps  
 1: S1 - Rotating Jaw  
**2: S100 - Reader Jaw**

Choose "2) S100 – Reader" and press ENTER.

Clamp: S100  
 Adjustments:  
 X= -10 Y1= -0,5 Y2= -0,5  
 To calibrate (START)

Digit the required corrections for axis X and axis Y (bit 1 = Y1 / bit 2 = Y2). Press ENTER.

Save  
 adjustment?  
 No=STOP Yes =ENTER

Press ENTER to confirm the data.

***DIMENSION CHECK – CUTTING TEST – PUMP KEYS***

To check the machine's precision, proceed as follows:

0 - Copy from Original	
1 - Decode and Copy	
<b>2 - Insert cuts</b>	
3 - Queue from PC	>>

Choose "2 Insert cuts" from the main menu and press ENTER.

SSN = 24	(Cut)
Make =	
= MOTTURA	
MT2 - MT3 - MT4	

Choose SSN = 24 and press ENTER.

Bit 1	(Symm. F-R)
#.....#	
Possible depths	
1234567#	(1)

Enter the depth for bit 1 as in the example:

Bit 1	(Symm. F-R)
#4441444#	
Possible depths	
123456#	(6)

Press ENTER

SSN: 24	M1	Brass
Clamp.: S1 – K1	Stop: 3	
Cutt.: 1.25	Adapt.: E3	
Pcs. 1 / 1	(START)	

Fit the key blank into the E3 adapter and follow the instructions in the user's manual, then press START.

Cutting in progress
Copy: 1 of: 1
Bit 1

Copy 1 of 1
finished
More copies?
No=STOP Yes=ENTER

Press STOP, remove the key and use a centesimal gauge to measure it.

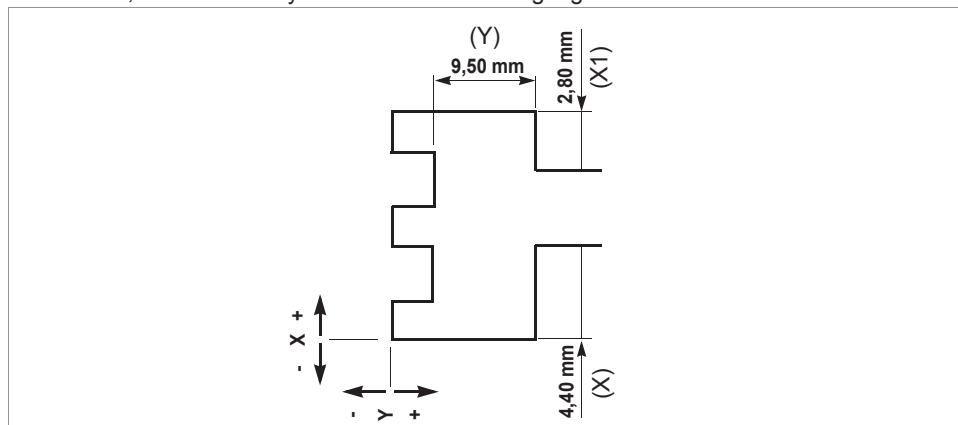


Fig. 126

Measurement X should be 4,40 mm (...inch), +/- 0,03 mm  
 Measurement X1 should be 2,80 mm (...inch) +/- 0,03 mm  
 Measurement Y should be 9,50 mm (... inch) +/-0,03mm

If this is not the case, e.g. X = 4,50 and Y = 9,40 proceed as follows:

**4 - Calibration**  
 5 - Maintenance  
 6 - Options

Choose 4 "Calibrations" from the main menu and press ENTER

1 - Clamps  
 2 - Cutters  
**3 - Adapters**

Choose 3 "Adapters" and press ENTER

Adapters  
 1: E1 - Mortice  
 2: E2 - Bit Stop Female  
**3: E3 - Pump (cutting)**

Choose 3 "E3 - Pump (cutting)" and press ENTER.

Adapter E3  
 Side: Cutting:  
 Adjustments: B=+000  
 X=+00 Y1=+00 Y2=+00

Position the pointer at the side of the parameter to be edited with the arrow keys or [ENTER] and use the following keys to edit the parameters:

SHIFT + [arrow up]: increases the value within + 300 hundredths of a mm or hundredths of a degree (axis B) + 20 cent. mm X/Y1/Y2

SHIFT + [arrow down]: decreases the value within - 300 hundredths of a mm or hundredths of a degree (axis B) - 20 cent. mm X/Y1/Y2

CLEAR = to zero the value

Esempio:

Adapter E3  
 Side: Cutting:  
 Adjustments: B=+000  
 X=+10 Y1=-10 Y2=+00

[ENTER] = in the last field to quit the window so that the query Save? appears for the edited data.

[START] = press START to begin the automatic gauging procedure.

Press [ENTER]

Digit the corrections required for axis X and axis Y.

Press [ENTER]

Save  
 adjustment ?  
 No=STOP Yes=ENTER

**ATTENTION: if [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.**

Press ENTER to confirm the data.

***DIMENSION CHECK WITH COPY FROM ORIGINAL***  
**(after making the Cutting Test)**

After carrying out the Cutting Test, proceed as follows:

**0 - Copy from Original**

- 1 - Decode and Copy
- 2 - Insert cuts
- 3 - Queue from PC

Choose 0 "Copy from Original" from the main menu and press ENTER

SELECT TYPE OF KEY

- 0 - Bit stop male
- 1 - Bit stop female
- 2 - Shoulder stop

**3 - Pump**

- 4 - Square-square tip
- 5 - Square-round tip
- 6 - Square stepped tip

Choose 3 "**Pompa**" and press ENTER.

**1 - Reading + Cutting**

- 2 - Cutting only
- 3 - Reading only
- 4 - Post-Reading adj.

Choose 1 "Reading + Cutting" and press ENTER.  
 Follow the instructions on the display.

KEY READING

Original on right  
 Clamp.: S100 A Stop: 3  
 Adap.E7 (START)

Press START.

Reading in progress....

Date processing  
 in progress  
 in corso...

Follow the instructions on the display.

Left blank	Brass
Clamp: S1-K1	Stop: 0
Cutt: 1.25	Adap. <b>E3</b>
Pcs = 1/1	(START)

Fit the key blank into the clamp (see ch. 5.9 on page 32), then press START.

Cutting in progress  
 Copy: 1 of: 1

Copy 1 of 1  
finished  
More copies ?  
No=STOP    Yes=ENTER

Press STOP, remove the key and use a centesimal gauge to measure it.

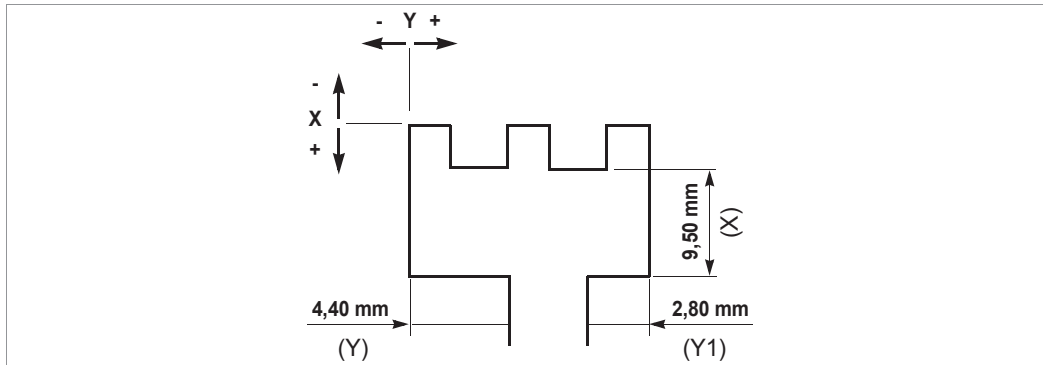


Fig. 127

Measurement Y should be 4,40 mm (...inch), +/- 0,03 mm  
[Measurement Y1 should be 2,80 mm (...inch) +/- 0,03 mm]  
Measurement X should be 9,50 mm (... inch) +/- 0,03mm

If this is not the case, e.g. X = 9,40 and Y = 4,30 proceed as follows:

**4 - Calibrations**  
5 - Maintenance  
6 - Options

Choose "4 Calibrations" from the main menu and press ENTER.

1 - Clamps  
2 - Cutters  
**3 - Adapters**

Choose 3 "Adapters" and press ENTER.

4: E4 - Muel (cutting)  
5: E5 - Fiam (cutting)  
6: E6 - Fiam (reading)  
**7: E7 - Pump (reading)**

Choose 7 "E7 - Pump (reading)" and press ENTER.

Adapter E7  
Side: Cutting:  
Adjustments:      B=+000  
X=+00    Y1=+00    Y2=+00

Position the pointer at the side of the parameter to be edited with the arrow keys or [ENTER] and use the following keys to edit the parameters:

SHIFT + [arrow up]: increases the value within + 300 hundredths of a mm or hundredths of a degree (axis B) + 20 cent. mm X/Y1/Y2

SHIFT + [arrow down]: decreases the value within - 300 hundredths of a mm or hundredths of a degree (axis B) - 20 cent. mm X/Y1/Y2

CLEAR = to zero the value.

Example:

Adapter E7	
Side: Reading	
Adjustments:	B=+000
X=+10	Y1=+10 Y2=+00

[ENTER] = in the last field to quit the window so that the query Save? appears for the edited data.

[START] = press START to begin the automatic gauging procedure or the CLAMP-TAILSTOCK unit.

Digit the corrections required for axis X and axis Y. Press ENTER.

Save adjustment ?	
No=STOP	Yes=ENTER

**ATTENTION:** *if [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.*

Press ENTER to confirm the data.

***DIMENSIONAL CHECK - CUTTING TEST FOR REAR STOP***

To check the machine's precision, proceed as follows:

```

0 - Copy from Original
1 - Decode and Copy
2 - Insert cuts
3 - Queue from PC      >>
  
```

Choose "2 Insert cuts" from the main menu and press ENTER.

```

SSN = 110      (Cut)
Marca =
= FICHET
Sans-Soucis P.P.
  
```

Choose SSN = 110 and press ENTER.

```

Bit 1      (Simm. F-R)
#.....###.....#
Possible depths
0123456789#      (2)
  
```

Enter the depth for bit 1 as in the example:

```

Bit 1      (Simm. F-R)
#11###11###11###11#
Possible depths
123456#      (8)
  
```

Press ENTER

```

SSN: 110 M1      Brass
Clamp: S1 – K1    Stop: 1
Cutt.: 1.25
Pcs. 1 / 1      (START)
  
```

Fit the key blank into the S1 - K2 clamp (see ch. 5.12 on page 43), then press START.

```

Cutting in progress
Copy: 1 of: 1
Bit 1
  
```

```

Cutting in progress
Copy: 1 of: 1
Bit 2
  
```

```

Copy 1 of 1
finished
More copies?
No=STOP    Yes=ENTER
  
```

Press STOP, remove the key and use a centesimal gauge to mesure it.

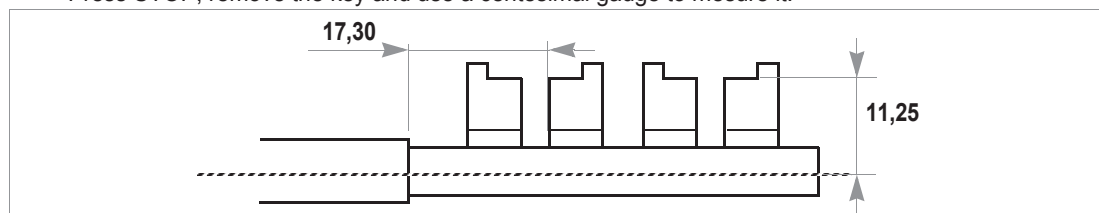


Fig. 128

Measurement X should be 17,30 mm (...inch), +/- 0,03 mm

Measurement Y (Y1+Y2) should be 11,25 mm (...inch) +/- 0,03 mm



If this is not the case, e.g. X = 17,40 and Y = 11,40 proceed as follows:

<b>4 - Calibration</b>
5 - Maintenance
6 - Options

Choose 4 "Calibrations" from the main menu and press ENTER.

<b>1 - Clamps</b>
2 - Cutters
3 - Adapters

Choose 1 "Clamps" and press ENTER.

Clamps
<b>1: S1 - Rotating Jaw</b>
2: S100 - Reading Jaw

Choose 1 "S1 - Rotating Jaw" and press ENTER.

Clamp: S1 – K1	>>
Adjustments:	B=+000
X= +10   Y1= -15   Y2= +00	
To calibrate	(START)

Clamp: S1 - K1 = unit comprising clamp S1 and interchangeable tailstock K1.

Press [SHIFT + ENTER]

(SHIFT+ENTER = to go to the other interchangeable tailstock used with clamp S1, if applicable).

Digit the corrections required for axis X and axis Y (bit 1 = Y1 / bit 2 = Y2).

Example:

Clamp: S1 – K2	
Adjustments:	B=+000
X= +10   Y1= -15   Y2= +00	
To calibrate	(START)

Position the pointer at the side of the parameter to be edited with the arrow keys or [ENTER] and use the following keys to edit the parameters:

SHIFT + [arrow up]: increases the value within + 300 hundredths of a mm or hundredths of a degree (axis B) + 20 cent. mm X/Y1/Y2

SHIFT + [arrow down]: decreases the value within - 300 hundredths of a mm or hundredths of a degree (axis B) - 20 cent. mm X/Y1/Y2

CLEAR = to zero the value

[ENTER] = in the last field to quit the window so that the query Save? appears for the edited data.

[START] = press START to begin the automatic gauging procedure or the CLAMP-TAILSTOCK unit.

Press ENTER

Save
Adjustments?
No=STOP      Yes=ENTER

**ATTENTION:** if [STOP] is pressed the new measurements are not saved; the previous gauging values therefore remain valid.

Press ENTER to confirm the data.

## 6.2 OPTIONS

Below are described all the steps necessary for choosing options.

Select the function from the main menu by placing the cursor on "6 – Options".

Press  [Down arrow key].

0 - Copy from Original
1 - Decode and copy
2 - Insert the Cuts
3 - Queue from PC    >>

4 - Calibrations
5 - Maintenance
<b>6 - Options</b>



A list of machine OPTIONS will appear:

1 - Serial No.
2 - Carriage speed
3 - Clamp rotation speed
4 - Preferences    >>

Place the cursor on the option required and press [ENTER].

5- Language
6- Keyboard inversion
7- Protected Systems
8- Bit width
9 - Check reading

### 6.2.1 Serial number

The display shows the machine's serial number, that should correspond to the one stamped on the date plate on the back of the machine.

Ser. n.: 153214523123
Model: IDEA
Keys cut: _ _ _
SW version. : _ . _ . _

### 6.2.2 Carriage approach speed

This is the speed at which the carriages move towards the cutting area, before starting the cutting cycle.

We recommend to operate the machine with the speed that is set. If required, the operator can adjust the carriage approach speed from a minimum of 1000 to a maximum of 3000 by.

Carriage approach speed = 3000 (1000 – 3000)
--

### 6.2.3 Rotating speed

This is the speed at which the rotating clamp move towards the cutting area, before starting the cutting cycle. We recommend to operate the machine with the speed that is set. If required, the operator can adjust the carriage approach speed from a minimum of 1000 to a maximum of 3000 by.

Clamp rotation speed = 3000 (1000 – 3000)
---

## 6.2.4 Preferences

**1** - used to choose the measuring unit used to view dimensions such as parameters, adjustments etc.  
(1 = INCH or 0 = millimetres).

1-Measurement unit  
2-Start menu  
3-Preferred MFG  
4-Quick menu

Measurement unit=  
( 0 =Millimetres )  
( 1 = Inch )

**2** - used to select from the main menu the function you wish to appear on the screen when the machine is turned on.  
Place the cursor on the item to be selected and press [ENTER]. An asterisk will appear (\*) to highlight the selection made.

0 Copy from original  
1 Decode and Copy  
2 Insert the Cuts  
3 Queue from PC

**3** - searches by code must be filtered by selecting the makes in which you are interested. This reduces the number of SSNs involved in the search.  
Place the cursor on the item to be selected and press [ENTER]. An asterisk will appear (\*) to highlight the selection made.

Select MFG [63]  
0\* All MFG  
1\* AGA  
2\* AGB

Press "CLEAR/COPY" to null the selection.

[63] total number of makes

The STANDARD setting of the machine enables searches through all makes (select the item "0-All makes"); as soon as one of the makes is selected the asterisk disappears from the item "0- All makes" and ONLY the MAKES selected are involved.

**4** - if enabled (=1) is used to skip some steps (or windows), when applicable in heavy operating flows, in order to speed up the procedure required by the operator.

Quick menu = 0 (0-1)

## 6.2.5 Language

Enter the number that corresponds to the language you intend to work with.

Lang. select. = 2

1: Italiano            2: English  
3: Deutsch          4: Français  
5: Español

## 6.2.6 Keyboard inversion

This operation is used to invert the function of the alphanumeric keys.

With Keypad inversion disabled (0):

- to digit number **1**: press [1/H] key.
- to digit letter **H**: press SHIFT + [1/H] key.

With Keypad inversion enabled (1):

- to digit number **1**: press SHIFT + [1/H] key.
- to digit letter **H**: press [1/H] key.

Inversion keyboard  
function = 0  
( 1 = Enabled )  
See operating manual.

**NOTE:** *this function is operative with "Insert the Cuts", "Decode and Copy" and in from the main menu.*

### 6.2.7 Limited access to Data (Protected Systems)

Silca has predisposed limited access to some of the data in the Database, in compliance with agreements with some makers. Limitations apply to:

- SERIES: No access to codes or data cards [SR]
- TABLE: No access to codes [TB]
- DATA CARD: No access to data card [SC]

Gain access to protected data in the following way:

- request the maker's authorization.
- communicate to Silca:
  - The key-cutting machine **SERIAL NUMBER**
  - The **ACTIVATION CODE**
  - Key-cutting machine **ID**

Silca will issue a Password to enter in order to enable key-cutting of the protected system.  
Example: Silca provides a protected data card for SSN No. yyy.

When SSN yyy is selected from menu 0-1 or 2 the following appears on the screen:

PROTECTED DATA CARD
Machine ID: <b>12345</b>
Code: <b>SPWSC00011</b>
Password:0

When authorization has been received from the maker, apply to Silca for a password, providing the following information:

- **Key-cutting machine serial No. 1170145634567**

Read the serial number on the ID plate fixed to the back of the machine.

- **Machine ID 12345**

Visible in the password application box or by selecting menus 6-7-1 on the machine.

- **ACTIVATION Code SPWSC00011**

Shown ONLY when access to protected data is attempted.

Once obtained, enter the password on the Password line, as shown in the example given above.  
If the correct password has been entered, the screen shows:

CORRECT PASSWORD
Save
Password ?
No=STOP Yes=ENTER

The password can **be saved** so that it need not be entered whenever the protected data card is used, or **not saved** so that access is limited only to the person in possession of the password.

#### 6.2.7.1 LIST OF ENABLED SYSTEMS ACTIVATED AND REMOVAL OF AN ACTIVATION

To consult the list of enabled DATA (data card, series or table) select menus 6-7:

Select the item in menu 1 to see the Machine Identification Number.  
Select the item in menu 2 to see the list of Enabled Systems

PROTECTED SYSTEMS
1 Machine ID
2 Enabled Systems

Enabled Systems
1: SSN121 [SC]
2: SSN234 [SC]

Use the (Right-hand arrow) key to view the description associated to the lock system.  
To delete an enabled system, place the cursor on the line to be eliminated and press the CLEAR key.

## 6.2.8 Bit height

**ATTENTION:** Only if the material setting is STEEL.

To cut a STEEL key blank (BIT OR DOUBLE BIT) the maximum height allowed is 1500 (15 mm). This option is used to alter this value and set a bit height above 1500.

Press ENTER: the display shows:

Max bit width for  
steel keys = 1500  
(1500 – 2400)

If the value of 1500 (15 mm) is exceeded (digitized), when ENTER is pressed the display will show:

ATTENTION  
Recommended value  
1500  
See operating manual

Press ENTER:

Save  
adjustment ?  
No = STOP Yes = ENTER

STOP = Cancel the operation and return to the Options menu.  
ENTER = Confirm save the alteration.

## 6.2.9 Reading Check

Press ENTER: the display shows:

Check reading  
Enable reading  
check = 1  
(1 = enabled)

1 = Enables the bit check function at the end of the reading process.  
0 = Disables the bit check function at the end of the reading process.

Setting 1 = function enabled, the machine software will check the reading and assess the possibility to make a perfect copy of the key.

In the event of anomalies the display will show an error message (see errors 22-23, ch. 6.2.10.2, page 117)

Setting 0 = function disabled, the machine will not check the key reading. Keys reproduced in this way could be different and not operational.

## CUTTING NARROW TEETH

When cutting teeth that are narrower than the cutter thickness, the display will show:

A)

Current cutter: 1.25
Max trimming: 25
Continue?
No=STOP Yes=START

When START is pressed the cutter will trim a portion of material totalling 25/100 mm from the right and left hand sides of the tooth (drawing 1).

For Max. trim, bear in mind the 3 situations described below.

1 = Negative tooth (not the first tooth) with base less than the cutter. The cutter trims a portion of material from the right and left hand sides of the tooth, totalling 25/100 mm. (drawing 1).

2 = First negative tooth, front stop M, height greater than the safety measurement for the K1 tailstock. When START is pressed the cutter trims a portion of material (drawing 2).

3 = First negative tooth, front stop M, height below the safety measurement for the K1 tailstock. When START is pressed the cutter trims a portion of material totalling 25/100 mm (drawing 3).

**ATTENTION:** if the max. thickness value of the cutter to be selected is less than that foreseen on the machine, the key cannot be cut (see ERROR 12). Press STOP.

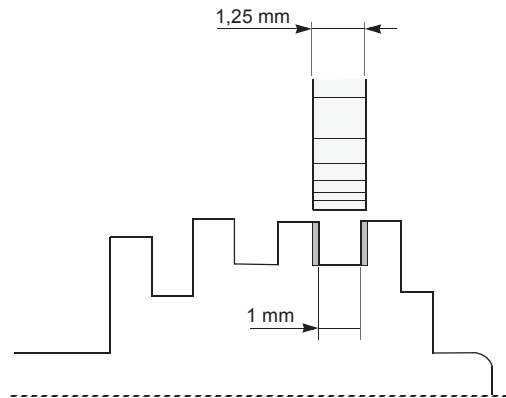
B)

ERROR 12
Select the cutter
with max thickness: 1,01 mm
[ENTER]

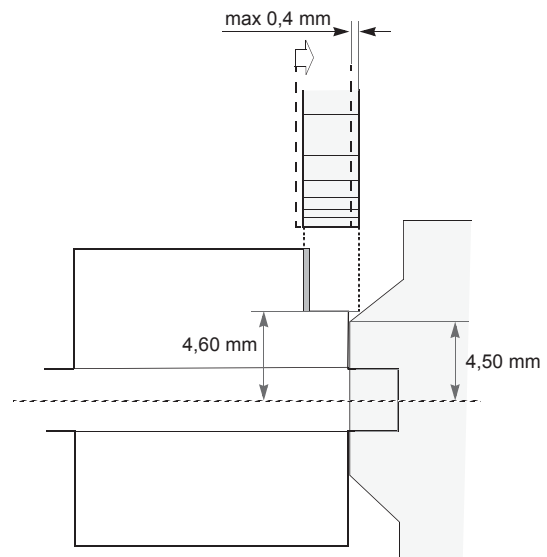
Press ENTER and select a cutter with a thickness the same as or less than that indicated; change the cutter.

Press STOP to quit cutter selection and START to begin cutting.

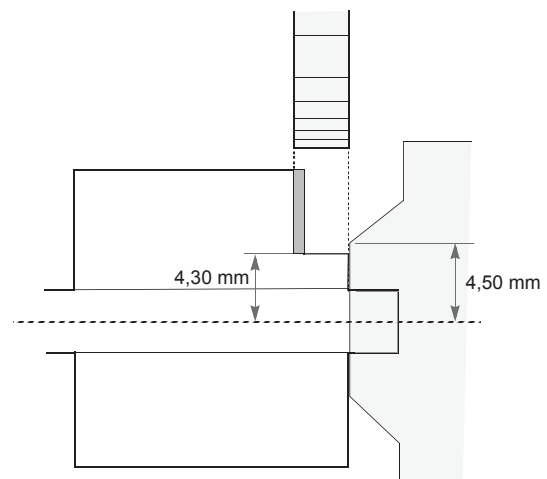
**ATTENTION:** if the max. thickness value of the cutter to be selected is less than that foreseen on the machine, the key cannot be cut. Press STOP.



drawing 1



drawing 2



drawing 3

## 6.2.10 Machine Messages

### 6.2.10.1 ALARM MESSAGES

#### N° 1

This message indicates that during advancement the cutter or tracer point has encountered an unexpected obstacle. For example:

- a foreign body has been left on the clamp.
- the key has not been positioned properly (vertical instead of horizontal) or does not correspond to the one required by the selected SSN.
- a clamp has been installed different from the one required for the job/decoding in progress.
- the wrong adapter has been fitted or is not required for the job/decoding in progress.

ALARM 1  
Faulty contact made!  
Press START to  
move axis at zero point.

#### N° 2

The message indicates that the clamp required by the program flow for cutting or decoding has not been gauged. Carry out the CLAMP GAUGING instructions given.

ALARM 2  
Clamp not  
calibrated !

#### N° 3

The permitted temperature has been exceeded on the electronic control board. Check the cooling fan (see ch.7.1 "Trouble shooting").

ALARM 3  
HIGH TEMPERATURE  
Turn machine  
off!

#### N° 4

Signals that the fuse has cut out due to a short circuit in one of the inputs or outputs (see ch.7.1 "Trouble shooting").

ALARM 4  
I/O POWER  
Check  
fuse F4!

#### N° 5

Signals a short circuit on port P (IN/OUT) (see ch.7.1 "Trouble shooting").

ALARM 5  
DIGITAL OUTLET  
Turn the  
machine off!

#### N° 6

Signals that fuse F1 has probably cut out (see ch.7.1 "Trouble shooting").

ALARM 6  
CUTTER MOTOR  
Check fuse F1!

#### N° 7

Signals a fault on the electronic circuit board.

ALARM 7  
CUTTER MOTOR  
Motor circuit  
anomaly!

**N° 8**

The height of the bit read by electrical contact is too big.  
Use a key blank with a lower bit height.

ALARM 8  
The bit to be cut  
is too high !  
See operating manual.

**N° 9**

Indicates that a movement has taken place exceeding the depth limit for the cutting job in progress.

Possible causes:

- a negative manual adjustment of Y has been made to the clamp or adapter used to grip the key.
- a negative MANUAL adjustment of Y has been made to the circuit board by means of the SILCA KEY PROGRAMS program.

ALARM 9  
Depth limit  
overrun !  
See operating manual.

**N° 11**

The message indicates that the key-cutting machine cannot complete an X movement because it exceeds the limits set for the X axis.

Possible causes:

- a positive MANUAL adjustment has been made to X on the clamp or adapter used to grip the key
- a positive MANUAL adjustment has been made on the circuit board by means of the SILCA KEY PROGRAMS program.
- a cutter that is too thick has been used.

ALARM 11  
An X movement  
exceeds safety  
limit.

**N° 12**

The cutter is working under pressure and the motor cannot guarantee the minimum number of revs.

Possible causes:

- the key material has not been selected properly; this parameter is important for setting the right cutting speed.
- the cutter is worn
- the bit is too thick.
- the key material is too resistant.
- the cutter motor rev control device may be faulty.

ALARM 12  
CUTTER MOTOR  
Minimum speed is  
Not obtained !

**N° 13**

The message indicates that the axis indicated (X, Y or B) is not working properly due to:

- an obstacle preventing the axis from moving freely and complete its run
- the limit switch sensor is not working (carry out the sensor TEST)
- the photocell, if applicable, is not working (carry out the photocell TEST)
- the motor that moves the axis is faulty (carry out the motor TEST)
- the motor control on the electronic circuit board is faulty (carry out the motor TEST)

ALARM 13  
X/Y/B axis movement  
not completely  
zeroed.



**N° 14**

The message indicates that the key-cutting machine is unable to complete an X movement because it goes beyond the limits set for the X axis.

Possible causes:

- a key with too long a bit has been used.
- a negative MANUAL adjustment has been made to X on the clamp or adapter used to grip the key.
- a negative MANUAL adjustment has been made to X on the circuit board by means of the SILCA KEY PROGRAMS program.

ALARM 14  
The bit to be cut is  
too long !  
See operating manual.

**N° 15**

The SKP program version transmitting the data to the machine is incompatible with the SW version of the machine program.

Solution:

- update the SKP program with a compatible version.

ALARM 15  
Incompatible data  
format.  
See operating manual.

**N° 16**

The cutter is working under pressure and the motor cannot guarantee the minimum number of revs. The machine has made unsuccessful attempts to reduce cutting speed.

Possible causes:

- the key material has not been selected properly; this parameter is important for setting the correct cutting speed:
- the cutter is worn
- the bit is too thick.
- the key material is very resistant.

ALARM 16  
Strain on cutter  
too high  
during cutting !

**N° 17**

The message indicates that the procedure for detecting the beginning of the bit for a FEMALE FRONT STOP key has been unsuccessful.

Possible causes:

- the key is not properly positioned
- The E2 adapter (centring device for female keys) is not fitted properly.
- electrical contact by the cutter is not working.
- the tailstock is not the one expected.

ALARM 17  
Key origin  
Not found!  
See operating manual.

**N° 18**

The message indicates that the height of the key bit exceeds the maximum dimension allowed.

See this manual at page 1 "GUIDE TO CONSULTATION" for the maximum key dimensions allowed for all types of keys.

ALARM 18  
Bit too high!  
See instructions  
manual.

### 6.2.10.2 ERROR MESSAGES

These errors may occur when the machine gauging procedure has not been successful.  
Possible causes:

- The Z13 gauging disk has not been properly fitted.
- The Z12 gauging template has not been properly fitted.

ERROR 1  
X AXIS no contact  
made !

ERROR 1  
Y AXIS no contact  
made !

ERROR 1  
B AXIS no contact  
made !

The messages listed below appear when there has been a problem during or after updating the program in the machine. Try updating or re-loading the machine internal software using the WINTRANSFER Program or the SILCA KEY PROGRAMS.

- The ISO cutting function has not been found.

ERROR 2  
ISO Function  
not defined !  
See operating manual.

- Machine ID has not been programmed.

ERROR 2  
MACHINE ID  
not defined  
See operating manual.

- The card uses a type of cut not run on the machine.

ERROR 2  
Type of cut  
not available !  
See operating manual.

- The clamp is not in the machine archive.

ERROR 2  
Clamp not  
available!  
See operating manual.

- The cutter is not in the machine archive.

ERROR 2  
Cutter not  
available!  
See operating manual.

- The adapter is not in the machine archive.

ERROR 2  
Adaptor not  
available!  
See operating manual.

- The clamp is not in the machine archive.

ERROR 2  
Undefined  
Clamp !  
See operating manual.

- The tailstock is not in the machine archive.

ERROR 2  
Tailstock  
not defined !  
See operating manual.

- The type of key associated to the cutting card has not been defined.

ERROR 2  
Type of key  
not defined !  
See operating manual.

When gauging the "Machine Zeros" lack of contact is detected between the two templates used (ch. 6.1.1, page 89).

ERROR 10  
Template no  
contact made.  
See operating manual.

The message signals a reader malfunction or an obstacle before starting the reading cycle.  
Possible causes:

- the reader is not working; proceed with the Reader Test in the Maintenance menu ->Test.
- Check that there is no material on the laser slide located on the bottom of the reader bracket.
- the key used is too big or exceeds the dimensions allowed for the type of key.
- an accessory or adapter has been fitted not required by the selected operation.

ERROR 11  
Optical reader  
is off  
See operating manual.

The message indicates that the chosen cutter is not suitable for cutting or copying the key, as its thickness is greater than the minimum width of the teeth to be cut. As current cutter select a cutter from those available in the cutter archive with a thickness less than or the same as that given in the message, with an overall tolerance of +25 hundredths.

ERROR 12  
Select the cutter  
with max thickness: x.xx mm  
[ENTER]

Indicates that the reading of an ORIGINAL key has been launched but the key is not in the reading clamp.

ERROR 13  
Original key not  
found

Indicates that one of the machine gauging operations has found an adjustment that exceeds tolerance.  
Possible causes:

- The gauging templates are not properly positioned; repeat the operation more carefully.
- A limit switch sensor is not working properly; carry out the sensor test for the axis out of tolerance.
- A machine zero photocell is not working properly; carry out the photocell test for the axis out of tolerance.
- One of the carriages has excessive play on it.
- The motor for the axis out of tolerance is not working properly; carry out the MOTOR test.

ERROR 14  
Exceeded setting  
Tolerance limit

Indicates that one or more incompatible POST-READING adjustments have been made. See chapter 5.15 of this manual.

ERROR 15  
Adjustments  
Incompatible with  
Those already made

The message indicates that the key installed cannot be decoded.

Possible causes:

- The key is bigger than the one on the selected card.
- The key is not properly positioned in the reading clamp.
- The card selected for decoding does not correspond to the key used.

ERROR 16  
Key cannot be  
decoded !

The message indicates that the adapter fitted to the optic reader or cutting clamp is not properly positioned.

Possible causes:

- The adapter is not properly positioned all the way in, as described in the instructions booklet.

ERROR 17  
Adapter not  
properly installed!

This message indicates that the height detected by electrical contact is greater than the setting (see Options / Bit height, cap. 6.2.8 a pag. 109)

ERROR 20  
Max. bit height  
for steel keys  
is: xx.xx mm

This message relates to the cutting of keys with rear stop and warns that a STOP number (1, 2, 3) has been set that is not compatible with the length of the key read by the optic reader.

Solution:

- select the right STOP.

ERROR 21  
STOP Position  
not compatible with  
key length.

The key may not be perfect, due to a slight error in the reconstruction of the key read.

Possible causes:

- some of the teeth on the key are deformed or crooked.
- there is dirt on the key that deforms the image of the reconstructed bit (grease, swarf, threads of cloth).

Solution:

- clean the key carefully with a metal brush and repeat the reading operation.

ERROR 22  
Key reading  
is not optimal  
ENTER to continue

**NOTE:** *In any case the key can be cut by pressing ENTER. There is no guarantee that the reproduction will be an exact copy of the original key.*

**NOTE:** *If the error is repeated or the key is not properly reproduced, consult ch.7.14 "DIAGNOSTIC FUNCTION – errors in: Copy from Original on IDEA", page 134, and/or contact Silca After-Sales Service.*

The key cannot be copied due to a SERIOUS error in the reconstruction of the key read.

Possible causes:

- some of the teeth on the key are extremely deformed or badly broken.
- there is dirt on the key that deforms the image of the reconstructed bit (grease, swarf, threads of cloth).

Solution:

- clean the key carefully with a metal brush and repeat the reading operation.

ERROR 23  
Key cannot be cut  
due to reading error:

**NOTE:** *If the error is repeated consult ch.7.14 "DIAGNOSTIC FUNCTION – errors in: Copy from Original on IDEA", page 134, and/or contact Silca After-Sales Service.*

A POST-READING adjustment has been incorrectly made to a key read from an original. The error code distinguishes the following situations:

1 – An X conversion has been applied to a single bit key reading. An X conversion can be applied only to double bit keys.

2 – A FRONT-BACK adjustment has been applied but the reading algorithm is unable to identify the number of teeth.

ERROR 24  
Error in  
post-reading adj.  
Code: \_\_

### 6.2.10.3 SIGNAL MESSAGES

This message is an example and refers to the use of the Standard cutter (PL 1.25).

The message indicates that the key to be cut has a tooth with a minimum width of 1.00 mm and the Standard cutter is installed.

In this case the difference between the width of the cutter and the tooth is within the maximum tolerance of 0.25 mm. The machine allows the operator to proceed and when START is pressed the 1.00 mm tooth will be cut with the PL 1.25 cutter and therefore widened equally on the left and right, as per drawing 1 on page 110.

**Current cutter: 1.25**  
**Max trimming: 1.00**  
**Continue?**  
**No=STOP Yes=START**

The message indicates that the combination relating to the cutting operation must be completed; no cuts can be skipped.

**ATTENTION**  
 Incomplete cutting  
 data !

The lock system number entered is not in the archive.

Code not  
 found !

Indicates a machine function not yet available.

**ATTENTION**  
 No-feasible  
 function !

Indicates that the machine should ALWAYS be turned off in order to remove or fit the ROTATING clamp, otherwise the electronic circuit board could be damaged.

**ATTENTION!**  
 Turn off machine  
 And fit clamp.

The message requires the T wrench to be inserted into its housing or pocket to avoid damaging the machine or cutting process if it is out of place.

Place  
 The 'T' wrench  
 Into holder.

The message indicates that a type of key is being reproduced without first having read the original.

Note: the machine is able to hold only the last key read in its memory.

**ATTENTION**  
 No key read  
 In the memory.

The message indicates that the characteristics of the key will not allow decoding by card.

**ATTENTION**  
 No decodable key  
 See instructions manual.

The message indicates that with S1-K1 manual adjustments, if a value of X =+... is set the K1 tailstock could be damaged. (first tooth in proximity of the tailstock has a height value of less than 4.5 mm).

**ATTENTION**  
 Positive X  
 adjustment can  
 damage tailstock

## 7 MAINTENANCE

**ATTENTION:** for repairs or replacement of parts for maintenance, the 'CE' mark is guaranteed only if original spare parts provided by the manufacturer are used.

Although the IDEA key-cutting machine does not require special maintenance, it is advisable to check and, if necessary, replace the parts subject to wear and electric/electronic parts (fuses, circuit boards, etc.) in the event of faulty operation.

**ATTENTION:** for normal servicing of the burnished mechanical parts, we recommend using lubricants or protective oil, e.g. WD40 or similar. Do not apply to the parts used for electrical contact (clamps, decoders, cutters, gauging templates, etc.). Do not contaminate the electronic parts with the oil.

**ATTENTION:** do not use alcohol to clean plexiglass and plastic parts of the machine.

Replacement is simple and can be carried out by the operator consulting the instructions.

Before starting any type of maintenance (controls or replacements), read the instructions below:

- never carry out maintenance with the machine switched on
- always remove the main power supply cable
- strictly follow all the instructions in the manual
- use original spare parts (see Spare Parts sheet provided).

### 7.1 TROUBLE SHOOTING

FAULT	PROBABLE CAUSE	
Machine is on, with no message on its display:	Not working	check to see if the back fan is working
		a) emergency button activated
	Working	b) general fuses in the power socket are faulty
		a) fuse F3 on electronic control board is faulty
		b) connection wire between display and electronic circuit board loose
cutter motor not working:	c) defective display	
	a) the closed protective shield is not making proper contact with the safety microswitch.	
	b) the F1 fuse on the electronic control board is faulty	
	c) motor wire not properly attached to the connector	
	d) defective electronic control board	
X, Y and B axes motors are not working	e) motor cut-off WARNING: this may derive from inappropriate or heavy use of the key-cutting machine or a fault with the motor itself. DO NOT USE THE MACHINE and call Technical Silca Dept. to determine the cause of activation of the cut-off.	
	None of the motors working:	a) fuse F2 on the electronic control board faulty
		b) the wiring between the transformer and electronic control board is loose or the connector is not seeded properly.
		c) defective electronic control board
	Only one motor is not working:	a) the connection wires between the motor and the electronic control board are loose or the connector is not seeded properly
		b) defective electronic control board
Protective shield is closed but the display reads "close shield"	a) the closed protective shield is not making proper contact with the microswitch (D3) (fig. 130)	
	b) the F4 fuse on the electronic control board is faulty	
Keyboard not working (partially or completely)	a) the keyboard connector is not properly connected to the interface board (fig. 129)	
	b) the wiring between the keyboard/display unit and electronic control board is not properly attached to the relative connectors	
	c) defective keyboard	
	d) defective electronic control board	
Electric contact not working (during calibrating or cutting)	a) wiring between the J14 connector on the electronic control board and cutter shaft is loose or disconnected	
	b) wiring inside the Y axis carriage is not seeded properly or disconnected	
	c) defective electronic control board	
	d) wear on the brushes (ch. 7.12, page 133)	

FAULT	PROBABLE CAUSE	
Optical reader not working	a) glass lens on the optical reader is dirty	
	b) wiring between optical reader and the electronic control board is not seeded properly	
	c) defective optical reader	
	d) defective electronic control board	
Key-cutting machine fails to communicate with computer	a) wiring between 9-pin serial port and electronic circuit board not seeded properly or disconnected	
	b) serial cable between key-cutting machine and computer is faulty	
	c) computer serial port is not functional	
	d) defective electronic control board	
The display shows the message: 'TEMPERATURE ALARM - turn the machine off'.	check that the fan on the back of the key-cutting machine is working:	
	Not working:	a) fan faulty
		b) electronic control board faulty
	Working:	electronic control board faulty
The display shows the message: 'I/O POWER ALARM - check fuse F4'.	a) fuse F4 on the electronic control board faulty.	
	b) short circuit on inlets or outlets. To find which inlet or outlet is causing the error message, disconnect the J4-5-7-8-12-14-15-20 connectors one at a time and check each time whether the alarm disappears.	
The display shows the message: 'DIGITAL OUTLET PROTECTION ALARM - turn the machine off'.	a) short circuit on the outlets. To find which outlet is causing the error message, disconnect the J4-5 connectors one at a time and check each time whether the alarm disappears.	
	b) internal fault on the electronic control board.	
The display shows the message: 'CUTTER MOTOR ALARM - check fuse F1'.	a) fuse F1 on the electronic control board faulty.	
	b) cutter microswitch on protective cover triggered or disconnected (D4) (fig. 130).	
	c) cutter motor wiring disconnected.	
	d) internal fault on the electronic control board.	

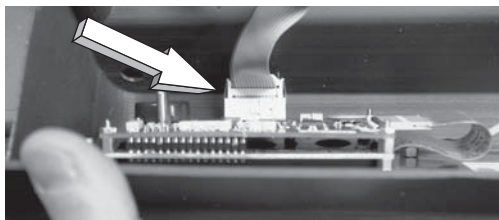


Fig. 129

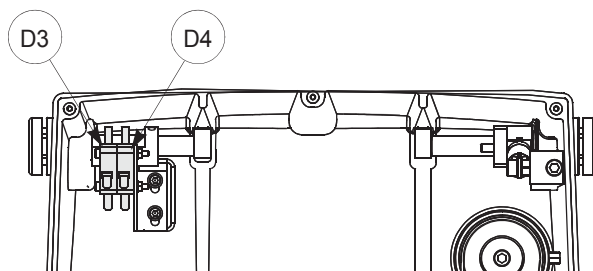


Fig. 130



## 7.2 MAINTENANCE OPERATIONS

- Cutter replacement
- Belt replacement and tension adjustment
- Fuse check and replacement
- Electronic circuit board replacement
- Keyboard/display replacement
- Access to back compartment
- Access to bottom compartment
- Sensor replacement
- Photocell replacement
- Brush replacement
- WIN-TRANSFER program for loading/updating the machine program

## 7.3 CUTTER REPLACEMENT

- 1) turn the machine off and unplug it.
- 2) remove the cutter protective shield (i) by loosening the screw (i2).
- 3) slide the cutter release rod (X) into the hole located on the left side of the machines cutter shaft chassis (fig. 131).
- 4) loosen the cutter locking nut (turning it clockwise) with the socket wrench (X1) provided with the machine.

**ATTENTION:** *the thread is left-handed (reversed).*

- 5) replace the cutter, then tighten the nut (turning it counter-clockwise) and remove the rod from its hole.
- 6) place the cutters protective shield (i) back into position securing it with the screw (i2).

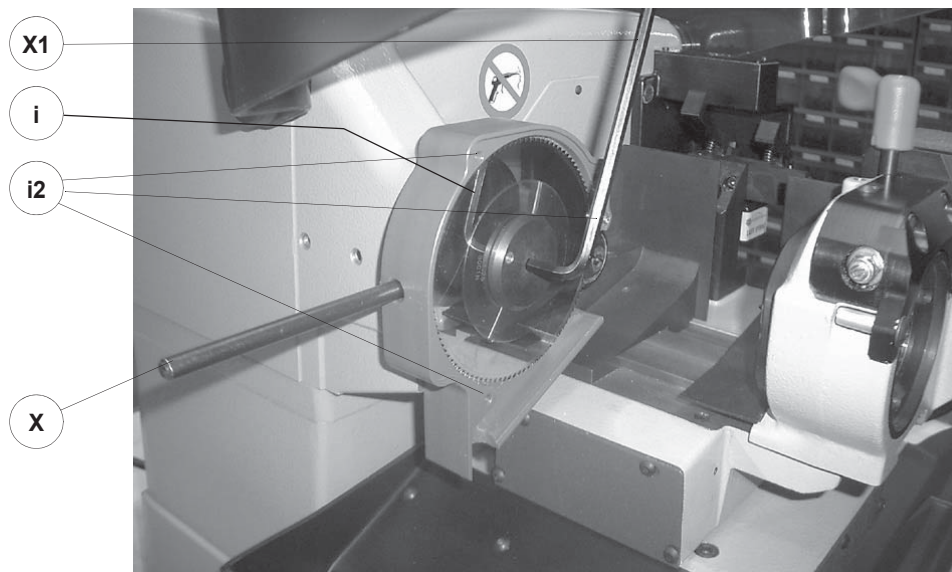


Fig. 131

**ATTENTION:** *when replacing a worn cutter with a new one or with a re-sharpened cutter consult ch.5.20 "Gauging", page 73.*

## 7.4 REPLACING AND TIGHTENING THE BELTS

**To replace the belt proceed as follows:**

- 1) turn off the machine and pull out the plug.
  - 2) remove the back metal panel (ch. 7.8, page 126).
  - 3) remove the bottom plate (ch. 7.9, page 126).
  - 4) loosen the 4 motor fixing screws (W).
- **“Motor” belt**
    - loosen the 2 screws (W3) and remove the plate (W4).
    - take the worn belt off the pulleys.
    - fit the new belt onto the pulleys.
    - tighten the 2 screws (W3) on the plate (W4).
  - **“Cutter” belt**
    - remove the motor belt.
    - raise the safety shield.
    - loosen the screw (W5) to remove the brush unit.
    - loosen the 2 screws (W3) and remove the plate (W4).
    - take the “motor” belt off the pulleys.
    - take the worn “cutter” belt off the pulleys.
    - fit the new belt onto the pulleys.
    - fit the “motor” belt onto the pulleys.
    - tighten the 2 screws (W3) on the plate (W4).
- 5) use the special plate (provided) and tighten the belt by turning the screw (W2).
  - 6) tighten the 4 motor fixing screws (W).
  - 7) replace the back metal panel and bottom plate.

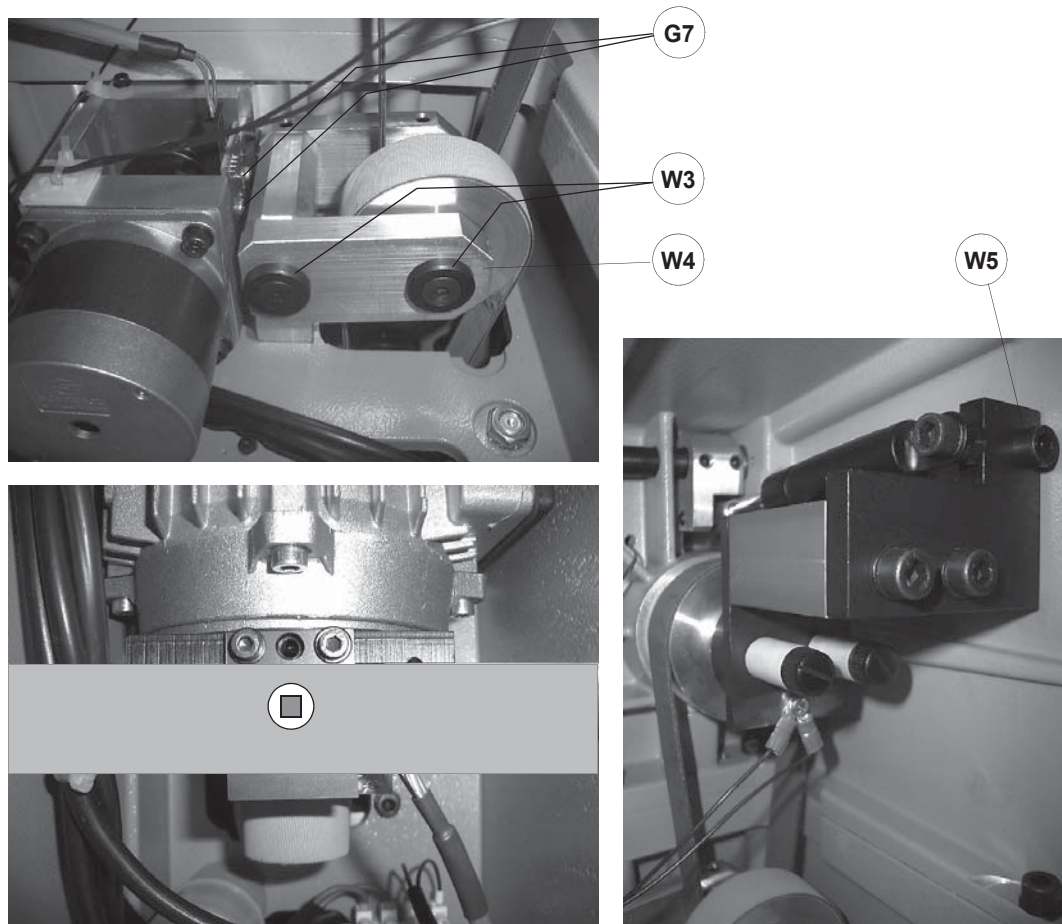


Fig. 132

**To tighten the belt/s, proceed as follows:**

- 1) turn the machine off and pull out the plug.
- 2) remove the bottom plate (ch.7.9).
- 3) loosen the 4 motor fixing screws (W).
- 4) use the special plate (provided) to tighten the belt by turning the screw (W2).
- 5) tighten the 4 motor fixing screws (W).
- 6) replace the bottom plate.

## 7.5 CHECKING AND/OR REPLACING FUSES

Fuses should be checked with a tester (ohmmeter, multimeter, etc.) as they may appear to be in good condition even when they are electrically faulty. Fuses must always be replaced with the same amperage and type (rapid or delayed), as indicated in this manual. There are 6 fuses in the IDEA.

- **2 fuses: 4 Amps rapid**

located next to the power socket on the back of the machine, next to the main switch (fig. 133). These fuses protect the machine from power surges and/or spikes in the electricity supply.

To check and/or replace the fuses proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) use a flat screwdriver to open the flap covering the socket, remove and check the fuses, replacing them if necessary.

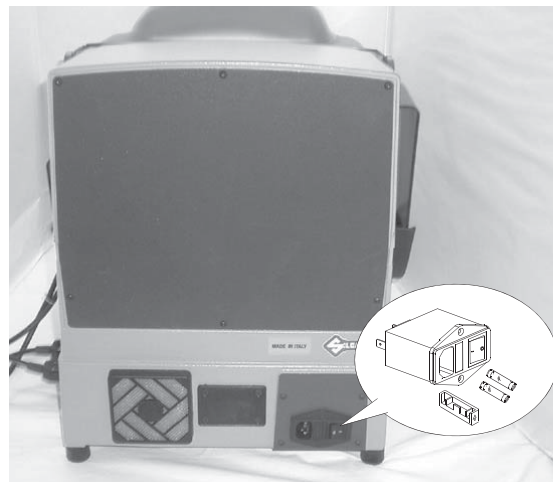


Fig. 133

- **4 fuses: F1, F2, F3, F4**

**F1: 10 Amps delayed**

- protects the cutter motor and its electronic controls

**F2: 6,3 Amps delayed**

- protects the step motors and their electronic controls (+32V d.c.)

**F3: 4 Amps delayed**

- protects the logic control circuits on the microprocessor board (+5V d.c.)

**F4: 2 Amps delayed**

- protects the digital output circuits for the low voltage controls and the sensor inlets (+24V d.c.)

Situated on the electronic circuit board inside the base of the machine (fig. 134) protecting the board from short circuits.

To check and/or replace the fuses proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the bottom panel (ch.7.9).
- 3) check and, if necessary, replace the fuses in the way described below:

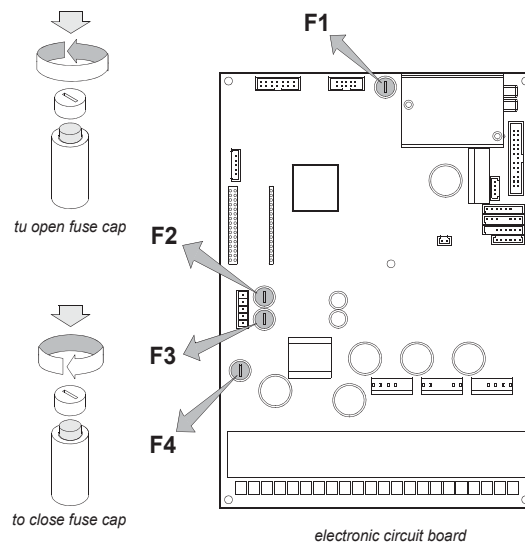


Fig. 134

**to remove the fuse:**

- press the fuse cap with your fingers and turn it counter clockwise.

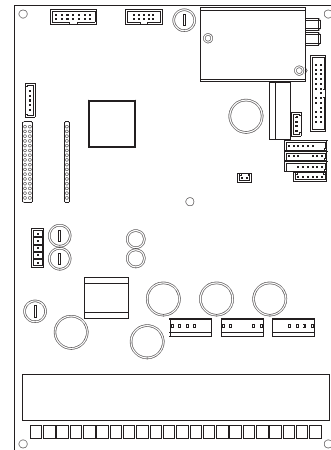
**To fit the new fuse:**

- carefully position the fuse back into place, then gently press the fuse cap downwards turning it clockwise

## 7.6 ELECTRONIC CIRCUIT BOARD REPLACEMENT

Proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the bottom panel (ch.7.9).
- 3) disconnect all cable connectors from the electronic circuit board.



electronic circuit board

Fig. 135

- 4) take the electronic circuit board off by unscrewing the (Y1) nuts off (fig. 136).
- 5) mount the new electronic circuit board and re-connect all cables (all cable connections are polarised therefore cannot be connected incorrectly).
- 6) re-fit the bottom panel and re-position the machine on its workbench.
- 7) turn the machine on and launch the WIN-TRANSFER program.

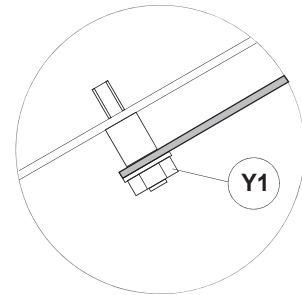


Fig. 136

## 7.7 KEYBOARD/DISPLAY REPLACEMENT

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the display's support, by unscrewing the 2 (B1) fixing screws (fig. 137).
- 3) detach the flat cable and ground wire from the keyboard (fig. 138).
- 4) unscrew the keyboard's fixing nuts and remove the keyboard from its support.
- 5) fit the new keyboard/display, repeating the operations described above, backwards.

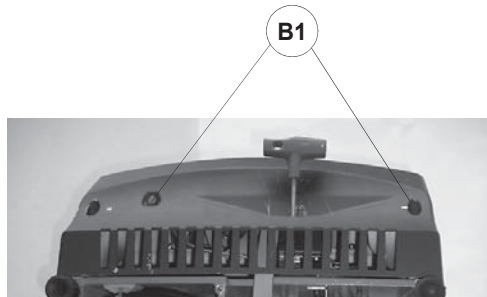


Fig. 137

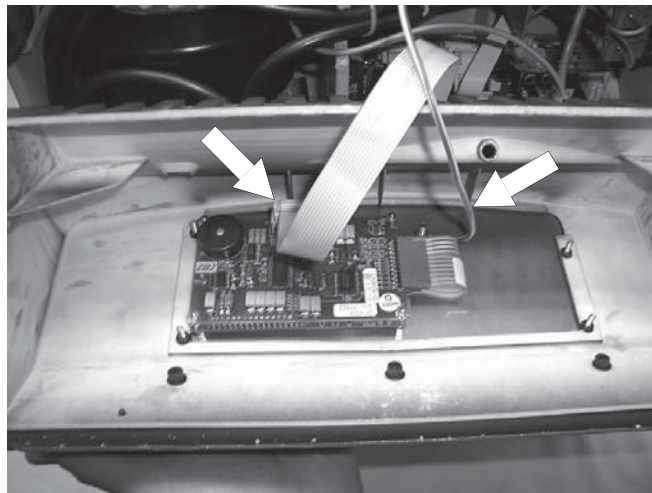


Fig. 138

## 7.8 ACCESS TO BACK COMPARTMENT

To gain access to the back compartment, proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) unscrew the 6 (M1) screws that secure the back panel (fig. 139) thus removing it.

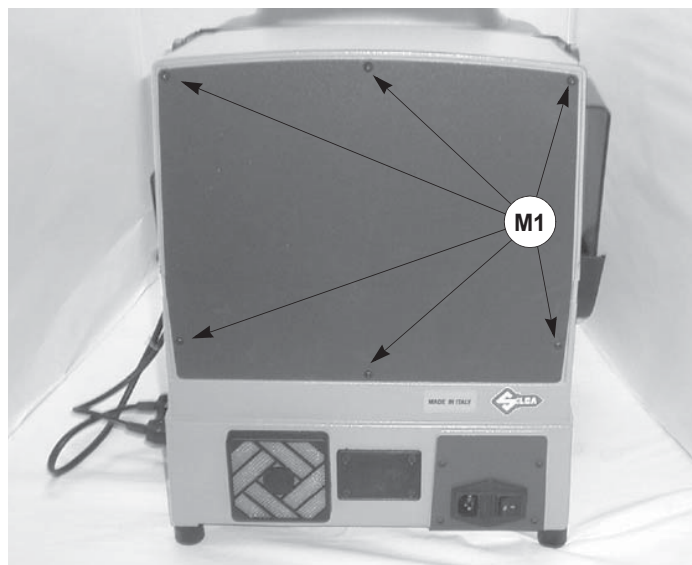


Fig. 139

## 7.9 ACCESS TO BOTTOM COMPARTMENT

To gain access to the bottom compartment, proceed as follows:

- 1) turn the machine off and unplug it from its power supply cable.
- 2) turn the machine on its back side.
- 3) remove the machine's bottom panel by unscrewing the 8 (L1) screws.

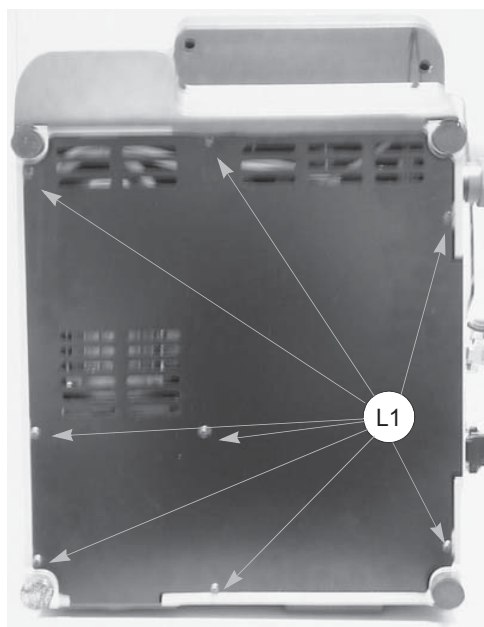


Fig. 140



## 7.10 SENSOR REPLACEMENT

### X AXIS SENSOR REPLACEMENT

- 1) turn the machine off and unplug it from its power supply cable.
- 2) remove the bottom panel (ch.7.9 "Access to bottom compartment").
- 3) disconnect the X axis sensor's connector from the electronic circuit board.
- 4) unscrewing the (L3) nut. Unscrew the sensor from the plate and remove it.
- 5) remove the front cover on the (X axis) lower carriage (fig. 142) by unscrewing the 3 (B4) screws.
- 6) fit the new sensor in position, tightening it until it almost touches the (L2) screw (fig. 141) thus securing it with the (L4) nut.
- 7) connect the sensor's connector to the electronic circuit board (see ch.6.1.1 "Machine zero points", page 89).
- 8) remount the bottom panel and front cover.

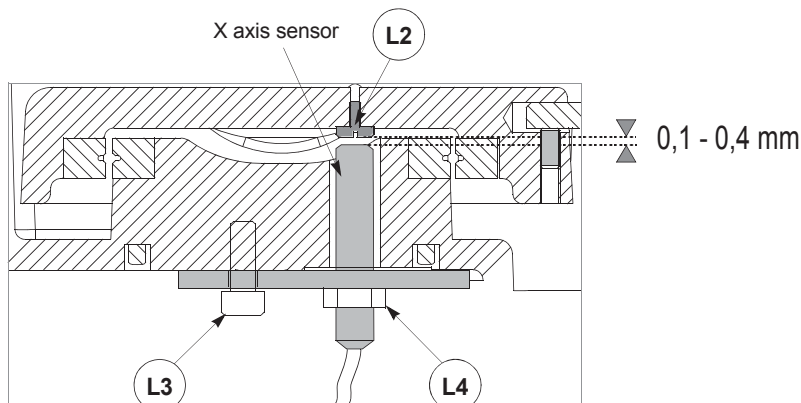


Fig. 141

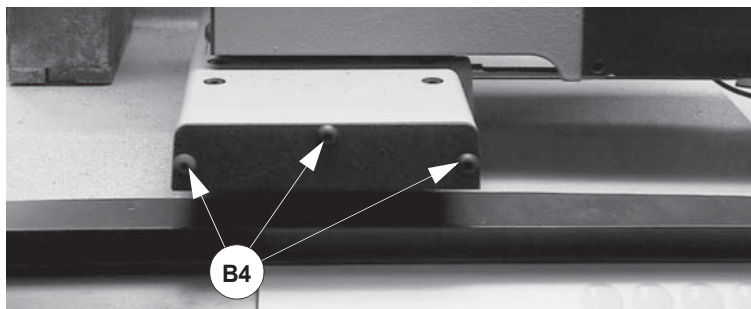


Fig. 142

### Y AXIS SENSOR REPLACEMENT

- 1) turn the machine off and unplug it from its power supply cable.
- 2) raise the protective shield.
- 3) disconnect the (J1) Y axis cable from the carriage.
- 4) remove the Y axis carriage cover by unscrewing the 3 (B5) locking screws and pull the cover in the direction shown in fig. 116.
- 5) disconnect the (M3) sensor's connector (fig. 143).
- 6) slightly loosen the (M2) grub screw with the provided allen key.
- 7) remove the faulty sensor and replace it with a new one. Screw it in until it almost touches the underlying rod (fig. 143). Tighten the (M2) grub screw to lock the sensor into place.
- 8) connect the (M3) sensor's connector.
- 9) replace the Y axis carriage cover.
- 10) connect the (J1) Y axis connecting wire to the carriage.

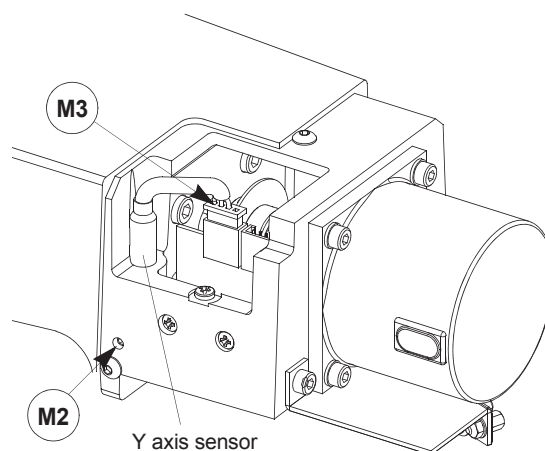


Fig. 143

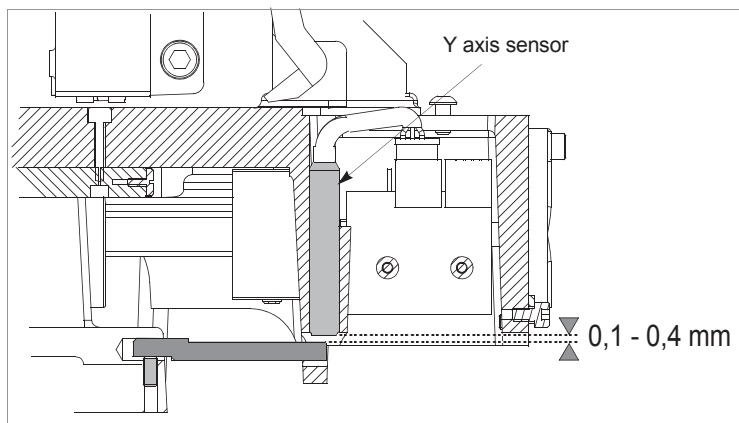


Fig. 144

### REPLACING THE B AXIS SENSOR

- 1) turn off the machine and unplug.
- 2) raise the safety shield.
- 3) loosen the 2+2 locking screws, remove and withdraw the B axis carriage cover.
- 4) disconnect the sensor connector (M5) (fig. 145).
- 5) loosen the grub screw (M6) with the allen wrench provided.
- 6) remove the worn sensor and fit the new one so that it almost touches the bottom (fig. 147).
- 7) connect the sensor connector (M5). Carry out the B axis sensor Test: the state is OFF.
- 8) Use a screwdriver to turn the screw (M7) clockwise (fig. 146), the state changes to ON, tighten the grub screw (M6).
- 9) Replace the B axis carriage cover.

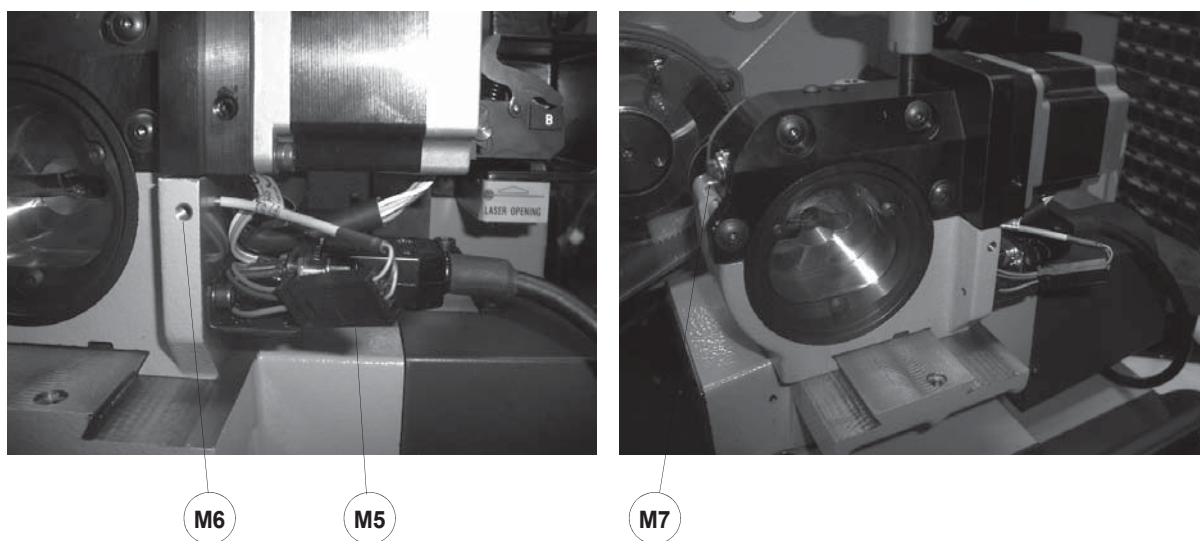


Fig. 145

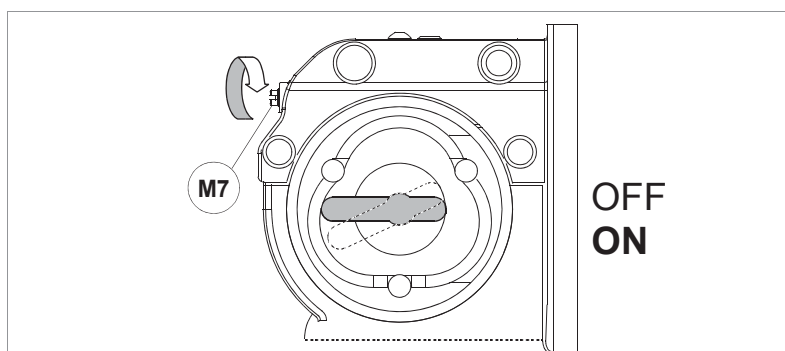


Fig. 146



## 7.11 REPLACING THE PHOTOCELL

### REPLACING THE X AXIS PHOTOCELL

- 1) turn off the machine and unplug.
- 2) remove the back panel (ch. 7.8, page 126).
- 3) raise the safety shield.
- 4) loosen the screw (W5) to remove the brush unit.
- 5) loosen the screws (W3) to remove the transmission unit.
- 6) loosen the 2 photocell fixing screws (G7) and remove.
- 7) disconnect the photocell wire (G5) (fig. 147).
- 8) connect the wire to the new photocell.
- 9) place the photocell in position and secure with the screws (G7).
- 10) replace the transmission unit.
- 11) replace the brush unit.
- 12) replace the back panel.
- 13) connect the electricity supply wire and turn on the machine.
- 14) proceed with gauging the machine.

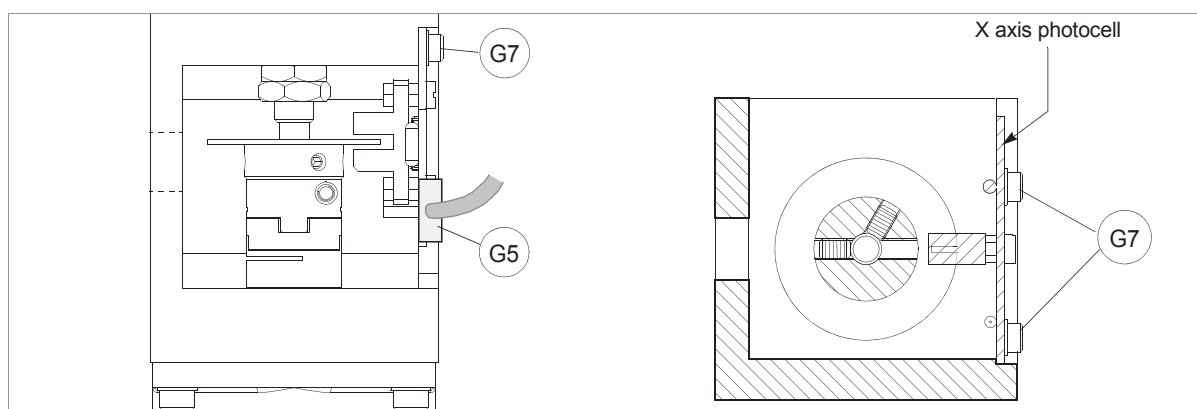


Fig. 147

### REPLACING THE Y AXIS PHOTOCELL

- 1) turn the machine off and unplug it from its power supply cable.
- 2) disconnect the (J1) Y axis cable from the carriage (fig. 116, page 90).
- 3) remove the Y axis carriage cover by unscrewing the 3 (B5) locking screws and pull the cover in the direction shown in fig. 116.
- 4) disconnect the (J2) photocell cable and (J) sensor cable (fig. 148).
- 5) unscrew the 2 (K) screws that hold the photocell card and remove it from the carriage.
- 6) place the new photocell card in the carriage and tighten the 2 (K) supporting screws.
- 7) reconnect both the photocell and sensor cables.
- 8) remount the Y axis protective cover.
- 9) connect the (J1) Y axis cable back on the carriage.
- 10) plug the machine back in and turn it on.
- 11) proceed with machine settings.

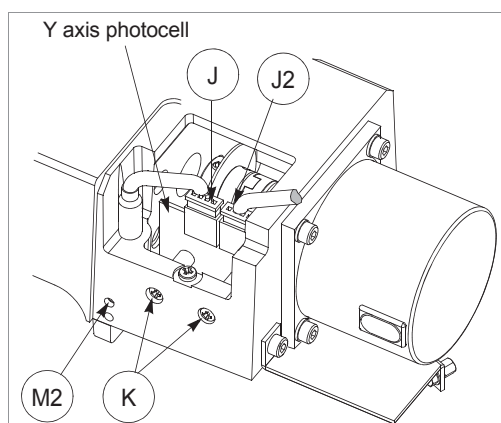


Fig. 148

**REPLACING CUTTER MOTOR PHOTOCELL**

- 1) turn the machine off and pull out the plug.
- 2) remove the lower plate (see ch.7.9 "Access to bottom compartment", page 126).
- 3) loosen the 2 screws (G11).
- 4) disconnect the photocell wire (G8) (fig. 149).
- 5) loosen the 2 screws (G9) fixing the photocell and remove it.
- 6) connect the wire to the new photocell.
- 7) position the photocell and secure with the screws (G9) so that the disk (G10) is in the centre of the photocell sensors.
- 8) tighten the screws (G11).
- 9) replace the lower plate.
- 10) connect the power supply wire and turn on the machine.
- 11) check with the cutter motor Test.

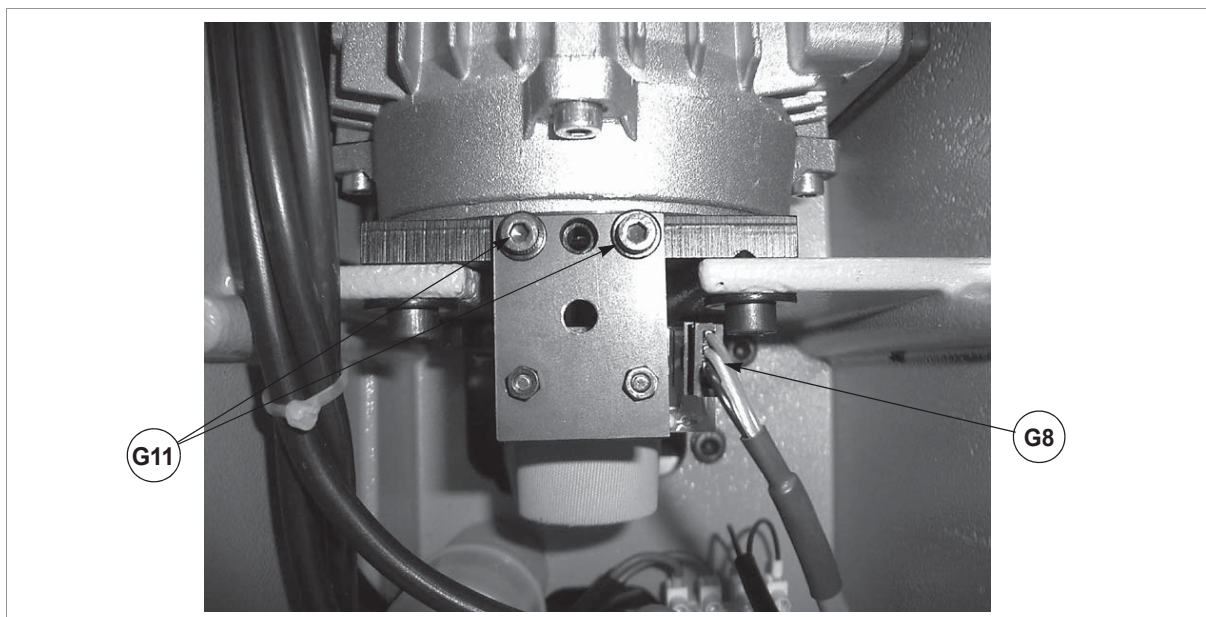


Fig. 149

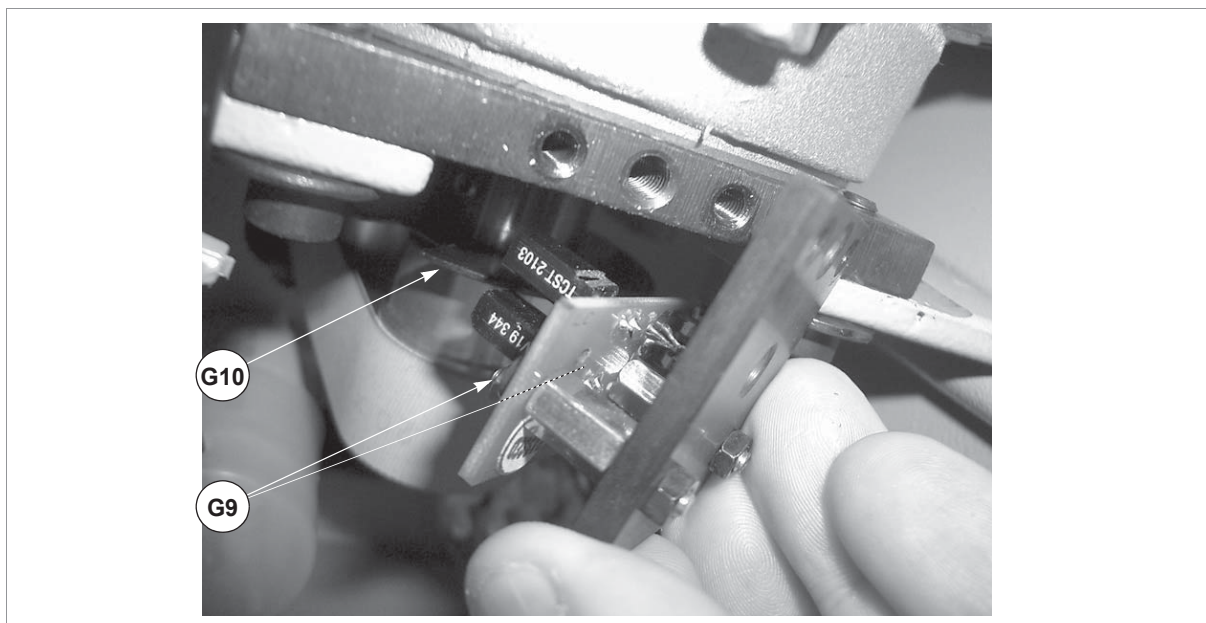


Fig. 150

### 7.11.1 Machine zero setting after replacing the photocells

#### CUTTING UNIT

1) enter 'Maintenance' menu #5.

4 - Calibrations  
**5 - Maintenance**  
 6 - Options

2) select 'Machine zero points' #2.

1 - Test  
**2 - Machine '0' points**

3) select 'Cutting unit' #1.

**1 - Cutting unit**  
 2 - Reading unit

4) install the (Z13) template.

5) remove the cutter from the machine and install the (Z12) template.

6) manually move the X and Y axes up until the templates make contact.

Install Z12 & Z13  
 templates.  
 See operating manual.  
 [ENTER]

7) lower the protective shield and press START.

ENTER

**ATTENTION:** check that both the (Z13) and (Z12) templates make perfect contact. If this does not occur the display will show an error message.

Move X and Y axis  
 up until contact is made  
 See operating manual.  
 [START]

8) press START

START

**ATTENTION:** do not touch the X and Y axes carriages and press START.

ERROR 10  
 no contact made.  
 See operating manual

START

Pos. Photocells.  
 TZX=ON TZY=ON  
 See operating manual.  
 [START]

9) press START

START



Fig. 151

**ATTENTION:** *do not touch the X and Y axes carriages and press START.*

10) press START

- the 'machine's zero' settings are detected by electric contact
- when this operation is completed, the machine's display will show the measured quotes.

**ATTENTION:** *if the STOP key is pressed, the new settings will be lost. If so, only the previous setting values will remain valid.*

11) press ENTER to save the settings.

12) remove the (Z12) and (Z13) templates.

13) proceed with setting the reading unit.

### READING UNIT

1) Select 'Reading unit' #2.

2) press ENTER.

3) install the (Z14) template (fig. 153).

4) lower the protective shield and press START.

- the 'machine's zero' settings are detected by the optical reader.
- when this operation is completed, the machine's display will show the measured quotes.

**ATTENTION:** *if the STOP key is pressed, the new settings will be lost. If so, only the previous setting values will remain valid.*

5) press ENTER

6) remove the (Z14) template.

- the new setting has been made.

Pos. sensors.  
ICX=ON ICY=ON  
See operating manual.  
[START]

START

Zero detection  
in progress !

Measurements read:  
X=4444 Y=3333  
Save data ?  
No=STOP Yes=ENTER

ENTER

1 - Cutting unit  
2 - Reading unit

ENTER

Install the A & B clamps  
and Z14 template.  
See operating manual.  
[START]

START

Zero detection  
in progress !

Measurements read:  
X=4444 Y=3333  
Save data ?  
No=STOP Yes=ENTER

ENTER

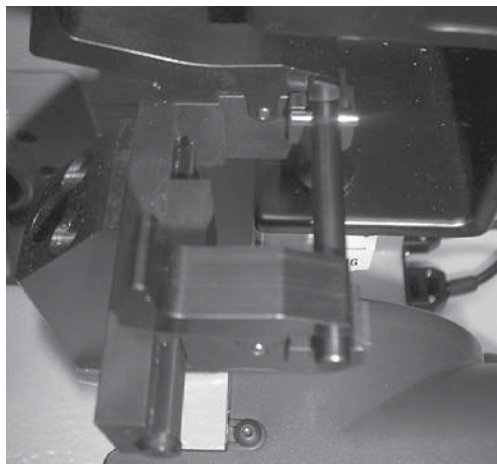


Fig. 152

## 7.12 BRUSH REPLACEMENT

- 1) open the rear compartment (ch.7.8).
- 2) unscrew the two brush caps (M4) (fig. 153), remove and fit two new brushes.
- 3) replace the two caps (M4).
- 4) close the rear compartment.
- 5) carry out "TEST 13" to check proper operation.

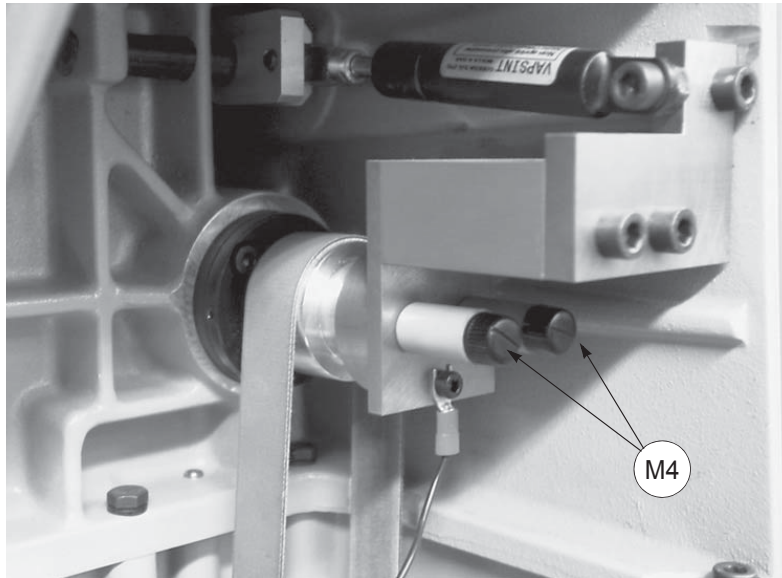


Fig. 153

## 7.13 WIN-TRANSFER PROGRAM FOR LOADING/UPDATING THE INTERNAL MACHINE PROGRAM

The machine is supplied with an internal program already loaded and tested in our workshops. The user therefore does not need to carry out any operations.

Only in the situations described below can the WIN-TRANSFER program be used to re-start the machine. The following is a list of situations where the use of the WIN-TRANSFER program is required.

- **Replacement of the electronic board or loss of the internal machine program.**
  - 1) replace the board with a new one, if necessary.
  - 2) install on your personal computer the latest version received of the WinTransfer program.
  - 3) read the serial number on the data plate on the back of the machine and enter on the machine.
  - 4) gauge the machine according to the instructions in the manual, as follows:
    - gauge as explained in chapter "Machine zero points" - "Cutting Unit" and "Reading Unit" in the user's manual.

At this point the machine is set up and ready for operation.

- **SILCA update for the program or machine data**
  - install on your personal computer the latest version received of the WinTransfer program and follow the instructions in the program.

## 7.14 DIAGNOSTIC FUNCTION – ERRORS IN: COPY FROM ORIGINAL ON IDEA

On IDEA key-cutting machines the new upgrade of SKP and Wintransfer can be used to notify Silca S.p.a. of any anomalies by simply sending a file.

If a key is not properly reproduced after reading it with the **Copy from Original** function, before carrying out other operations (especially the reading of other original keys), proceed as follows:

- - Connect the PC to the key-cutting machine:

### IDEA KEY-CUTTING MACHINE:

#### • How to download a bit from IDEA with SKP

- 1) Launch the SKP program.
- 2) Go to the list of machines.
- 3) Select the Idea machine and click with the mouse on the "Edit" button (if an IDEA has never been configured on SKP, do it by clicking with the mouse on the "New" button).
- 4) Click with the mouse on the "Sw upgrade" button (Wintransfer will be opened automatically).
- 5) Click with the mouse on the "Connection test" button (if the connection is OK, the "Bit download for after-sales service" button will be enabled).
- 6) Click with the mouse on the "Bit download for after-sales service" button.
- 7) Select the path (e.g. disk C:\) and give a name to the file to be saved.
- 8) Click with the mouse on the "Save" button.
- 9) The bit will be downloaded from IDEA (approx. 1 minute) and at the end of the operation the monitor will show a 'saved' message.
- 10) Send the file to Silca (the file will have the extension \*.map) via e-mail to the address ([service@silca.it](mailto:service@silca.it)), complete with the following information:

<b>SW Version of key-cutting machine</b>	. . .
<b>Description of problem</b>	- The last tooth of bit 1 is missing, or - part of the bit has been cut on the stem
<b>Errors on machine display</b>	INTERNAL ERROR n° 11

#### • How to download a bit from IDEA with Wintransfer

- 1) Launch the Wintransfer program.
- 2) Select the Idea machine and click with the mouse on the "Select" button.
- 3) Click with the mouse on the "Connection test" button (if the connection is OK, the "Bit download for after-sales service" button will be enabled).
- 4) Click with the mouse on the "Bit download for after-sales service" button.
- 5) Select the path (e.g. disk C:\) and give a name to the file to be saved.
- 6) Click with the mouse on the "Save" button.
- 7) The bit will be downloaded from IDEA (approx. 1 minute) and at the end of the operation the monitor will show a saved message.
- 8) Send the file to Silca (the file will have the extension \*.map) via e-mail to the address ([service@silca.it](mailto:service@silca.it)), complete with the following information:

<b>SW Version of key-cutting machine</b>	. . .
<b>Description of problem</b>	- The last tooth of bit 1 is missing, or - part of the bit has been cut on the stem
<b>Errors on machine display</b>	INTERNAL ERROR n° 11



**REDUCTION OF UPGRADING TIMES FOR INTERNAL MACHINE SOFTWARE**

The new **Wintransfer** program allows you to reduce data transfer times to the machine during upgrading, when part of the key-cutting machine data are already updated.

The choice of data transfer procedure, complete or fast, is at the user's discretion.

**IMPROVEMENTS TO THE USE OF THE "QUEUE FROM PC FUNCTION"**

Enable the RAPID MENU on the machine in the way described below:

- 1) Select : OPTIONS
- 2) Select : FAVOURITES
- 3) Select : RAPID MENU
- 4) Set the value : 1

In QUEUE FROM PC, when the key has been cut, the message below will no longer appear:

Copy: 1 of: 1 finished More copies ? NO=STOP YES=ENTER
---

and the next operation will start automatically.

## 8 DISPOSAL

For correct disposal please refer to current standards.

### INFORMATION FOR USERS OF PROFESSIONAL EQUIPMENT



#### **From "Actuation of Directive 2012/19/EU regarding Waste Electrical and Electronic Equipment (WEEE)"**

The symbol of a crossed waste bin found on equipment or its packing indicates that at the end of the product's useful life it must be collected separately from other waste so that it can be properly treated and recycled.

In particular, separate collection of this professional equipment when no longer in use is organised and managed:

- a) directly by the user when the equipment was placed on the market before 31 December 2010 and the user personally decides to eliminate it without replacing it with new equivalent equipment designed for the same use;
- b) by the manufacturer, that is to say the subject which was the first to introduce and market new equipment that replaces previous equipment, when the user decides to eliminate equipment placed on the market before 31 December 2010 at the end of its useful life and replace it with an equivalent product designed for the same use. In this latter case the user may ask the manufacturer to collect the existing equipment;
- c) by the manufacturer, that is to say the subject which was the first to introduce and market new equipment that replaces previous equipment, if it was placed on the market after 31 December 2010;

Suitable separate collection for the purpose of forwarding discarded equipment for recycling, treatment or disposal in an environmentally friendly way helps to avoid possible negative effects on the environment and human health and encourages re-use and/or recycling of the materials making up the equipment.

The sanctions currently provided for by law shall apply to users who dispose of products in unauthorised ways.



## **9 ASSISTANCE**

Silca provides full service to purchasers of the IDEA key-cutting machine. To ensure complete safety to the operator and machine, any job not specified in this manual should only be carried out by the manufacturer or recommended Silca Service Centres.

On the back cover of this manual is a list of the manufacturer's addresses; listed below are the addresses of specialized service centres.

### **9.1 HOW TO REQUEST SERVICE**

The guarantee attached to the IDEA ensures free repairs or replacements of faulty parts within 24 months of the date of purchase. All other service calls must be arranged by the customer with Silca or specialized Silca service centres.



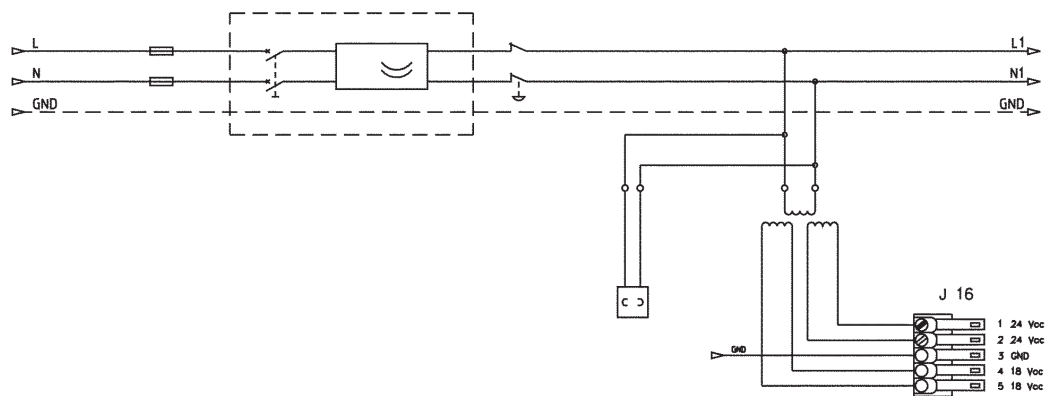
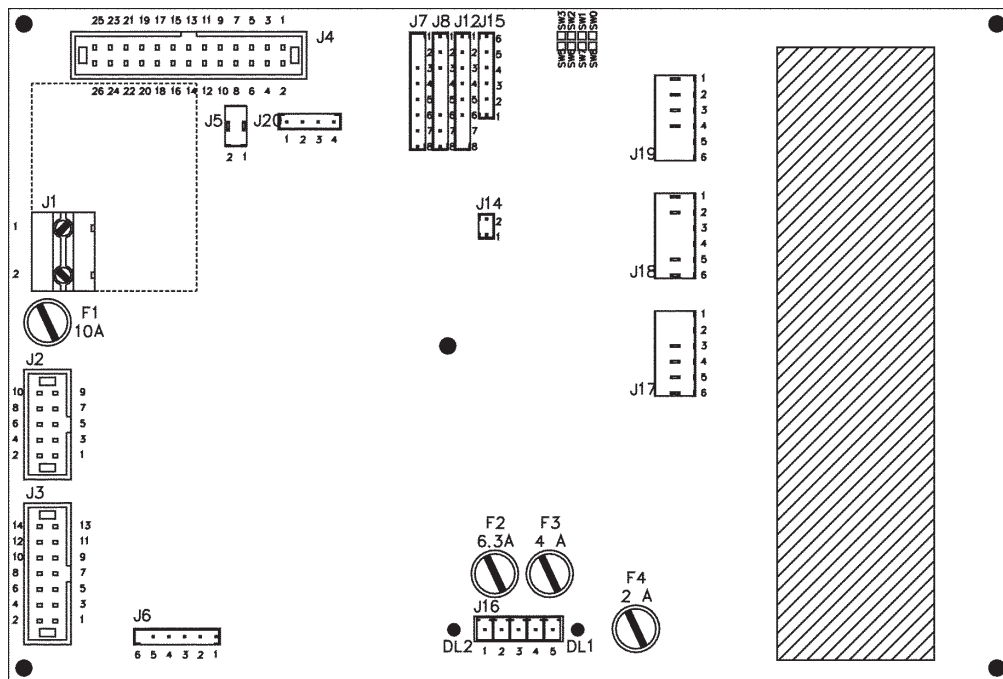
## **Appendix 1 - ELECTRICAL DIAGRAMS**

The following pages contain the electrical diagrams for the IDEA key-cutting machine described in this manual.



# IDEA

## ELECTRICAL DIAGRAMS



230V-50Hz

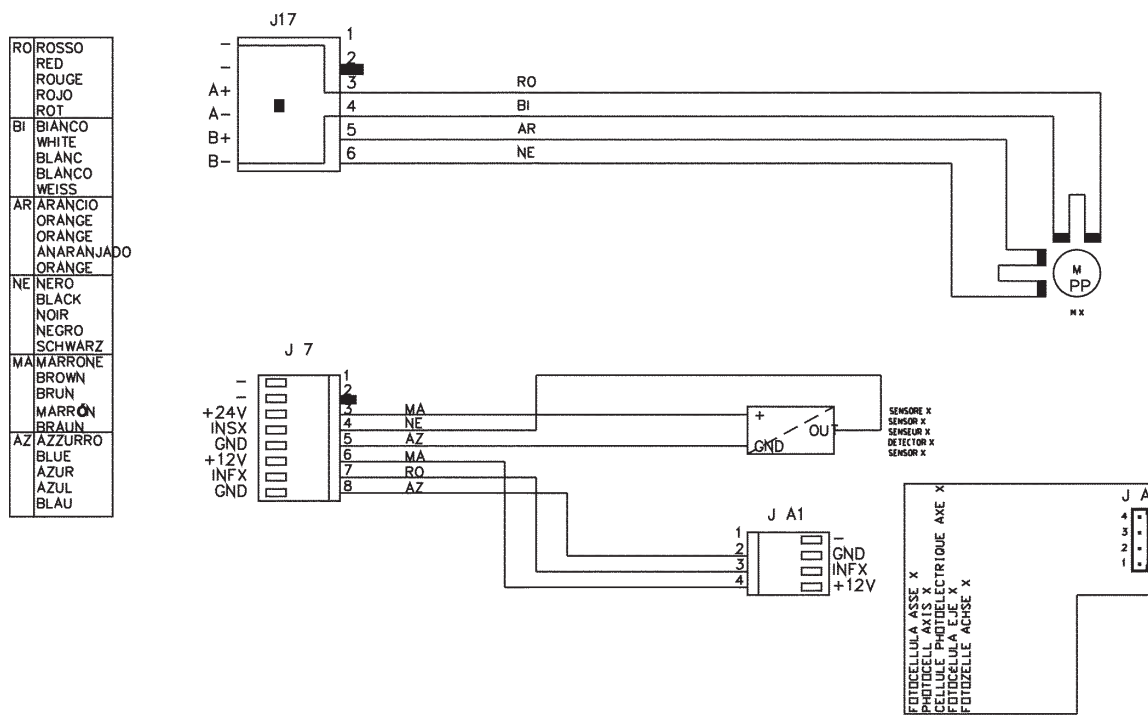
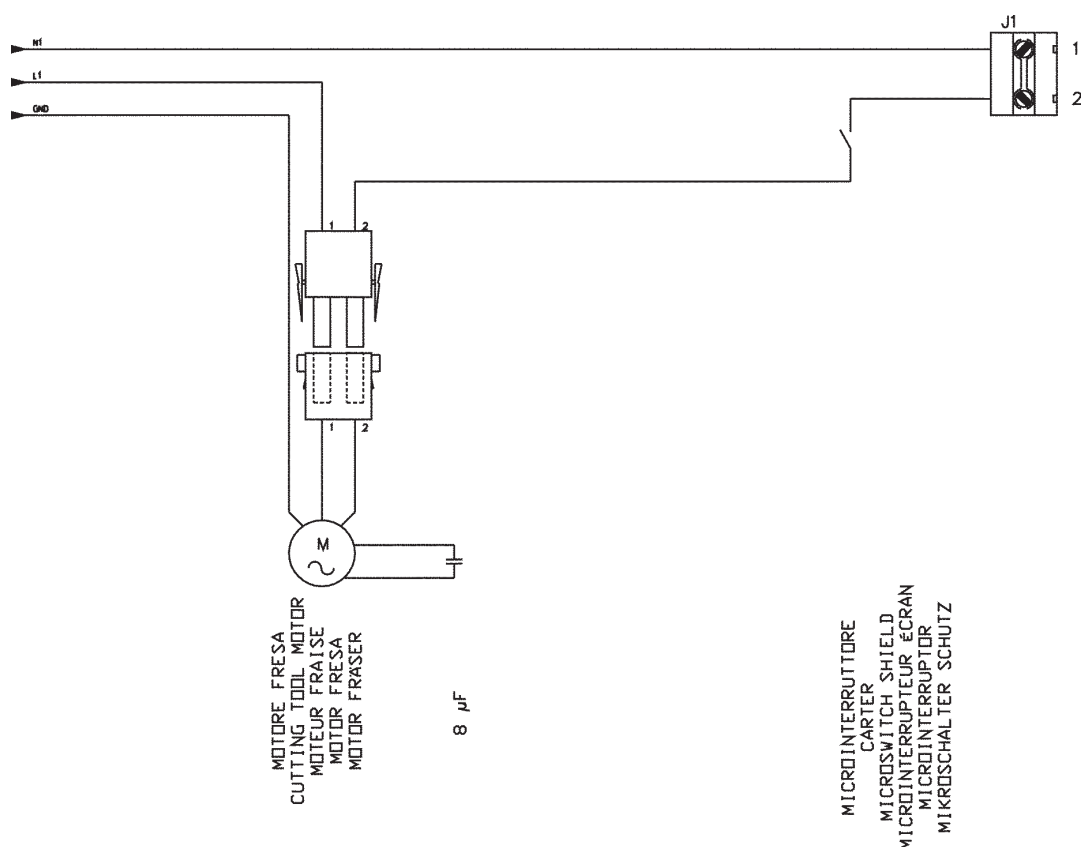
F 3. 15A

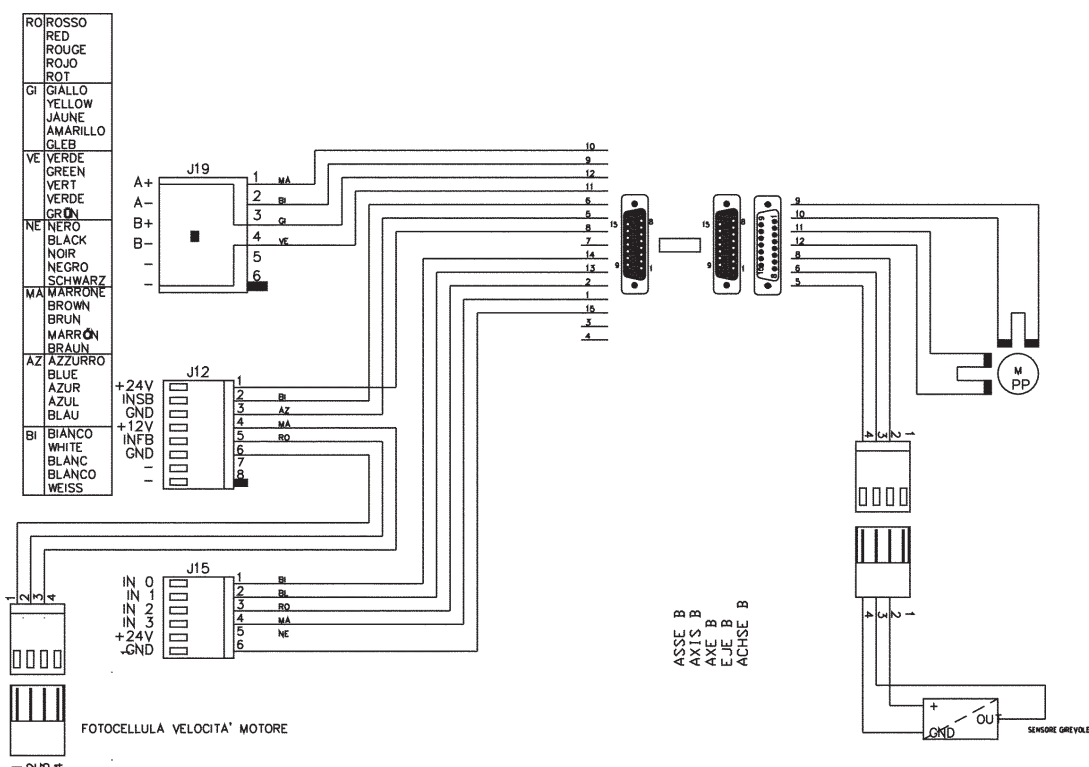
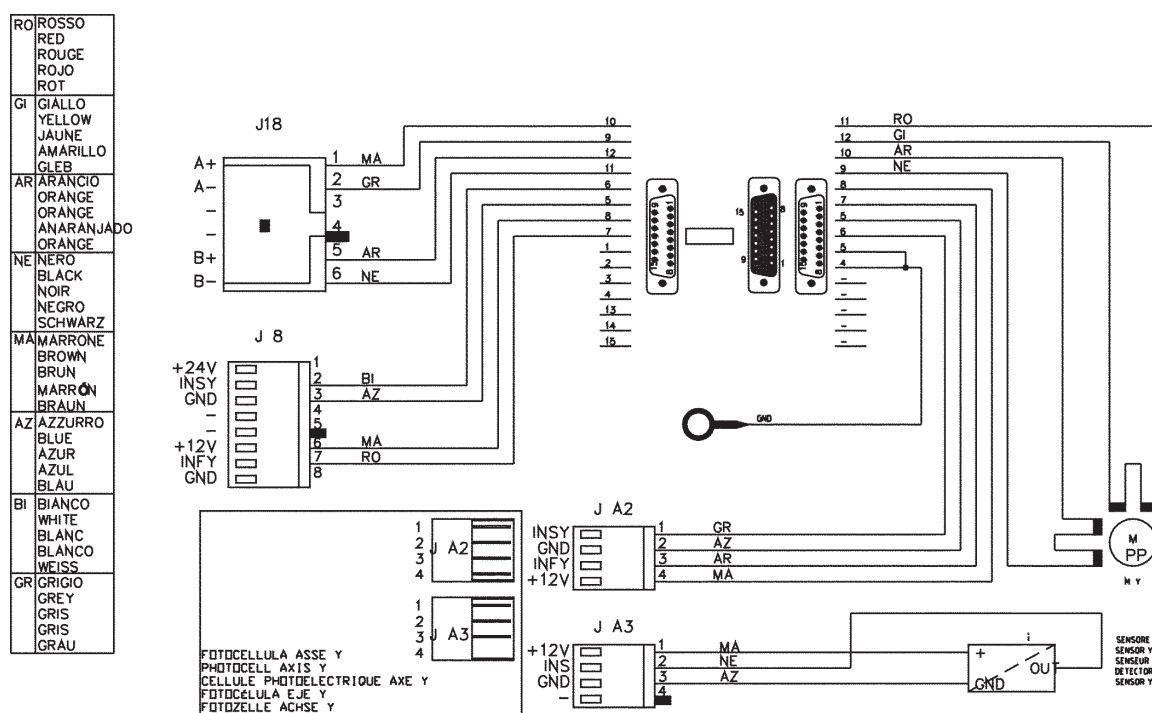
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SWITCH + FILTER  
INTERRUPTEUR + FILTRE  
INTERRUPTOR + FILTRO  
SCHALTER + FILTER

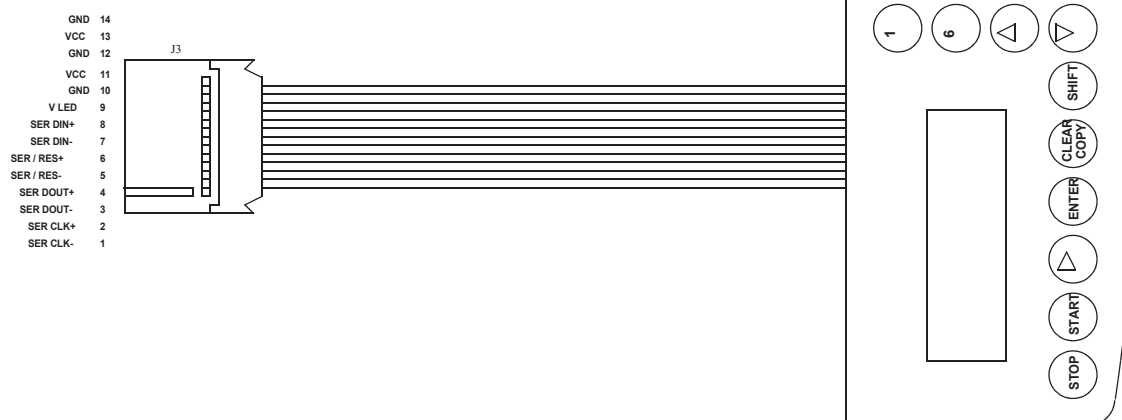
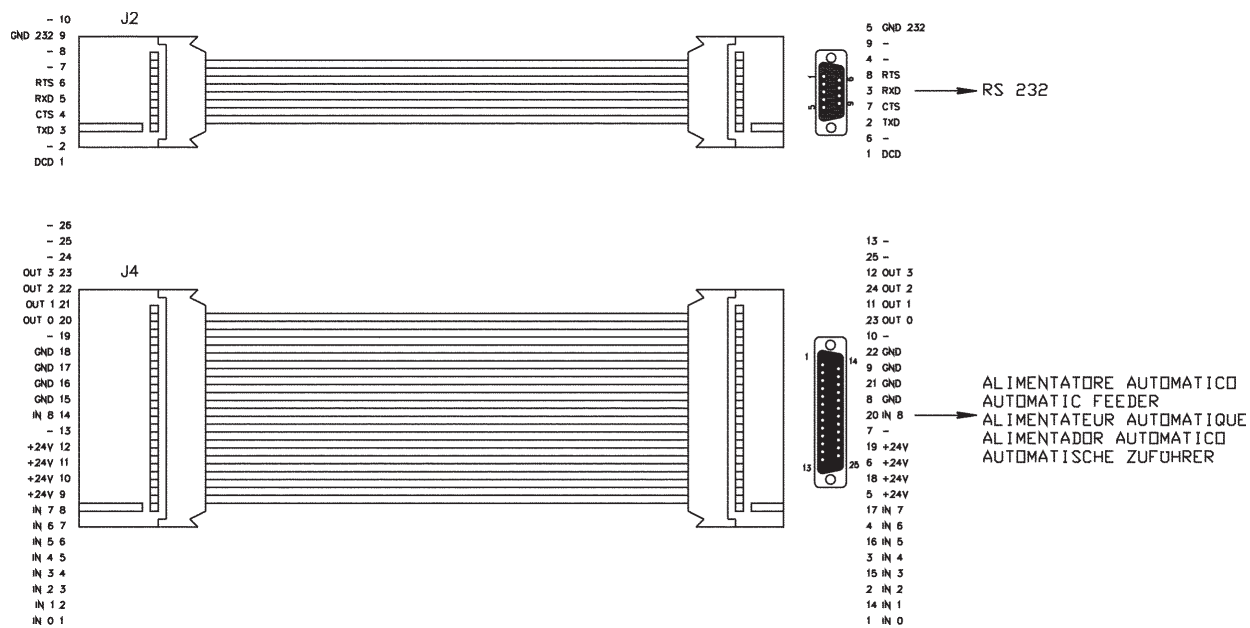
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EMERGENCY BUTTON  
POUSOIR D'URGENCE  
PULSADOR DE EMERGENCIA  
NOTSTOPASTE

VENTILATORE  
FAN  
VENTILATEUR  
VENTILADOR  
VENTILATOR

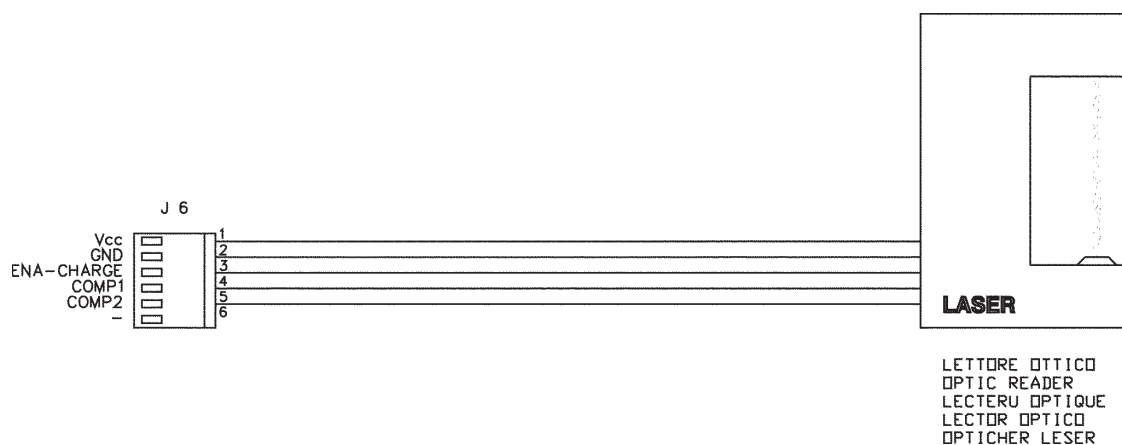
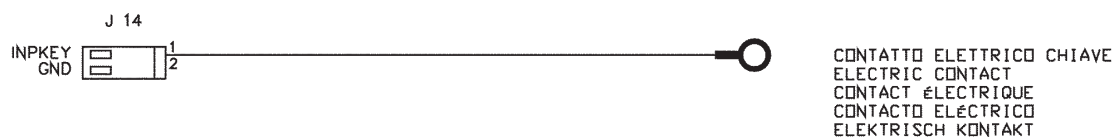
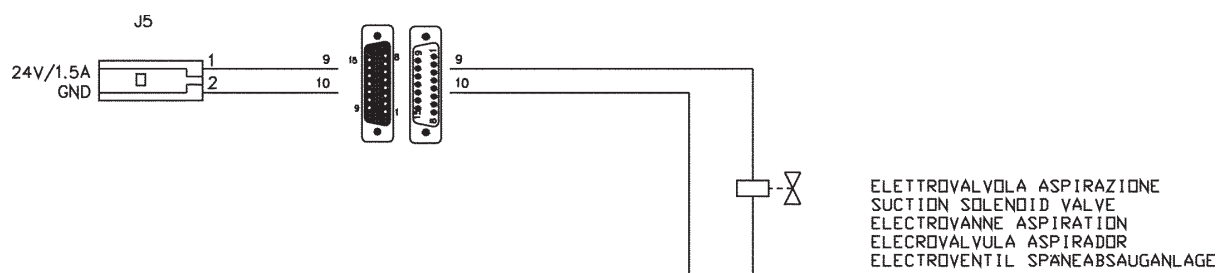
TRASFORMATORE  
TRANSFORMER  
TRANSFORMATEUR  
TRANSFORMADOR  
TRANSFORMATEUR













VITTORIO VENETO 24/03/2011

## CE DECLARATION OF MACHINE COMPLIANCE

**SILCA S.p.A. - VIA PODGORA 20 ( Z.I.)**  
**31029 VITTORIO VENETO (TV) - (ITALY)**  
**TEL. 0438 9136 - FAX. 0438 913800**

Declares under its own responsibility that the **Key-cutting machine** model

### IDEA

complies with the requirements of the following European Directives:

European Union **DIRECTIVE 2006/42/CE** (Machines)  
and with the EN 292/1 – EN 292/2 Standards

European Union **DIRECTIVE 2004/108/CE** (Electromagnetic Compatibility)  
and with the EN 61000 – 6 – 1 :2001 / EN 61000 - 6 – 3 :2001 Standards

European Union **DIRECTIVE 2006/95/CE** (Low Voltage)  
and with the EN 60204-1 ( sections 20.2 – 20.3 – 20.4 ) Standards

| 04 |

Claudio Tomasella of the Silca S.p.A. Research & Development Division is authorized to create a Technical File.

General Manager Basic Production Center

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[www.flexonsilca.co](http://www.flexonsilca.co)