



GRAVOGRAPH

User Manual

IS900



Machine

Electronic Engraving Machine

First Contact

IS900



Before installing and using this machine, you must read this user guide carefully. Keep it in a safe place, in case you need to refer to it later.
This manual should not be used without the CN 97 program manual - B2241 701

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TYPE OF MACHINE	:	IS900 IQ+ Electronic Engraving Machine
MANUFACTURER	:	GRAVOTECH MARKING SAS BP 15 - Z.I. - 10600 LA CHAPELLE SAINT LUC - FRANCE

Importer's address

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GRAVOGRAPH

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Information about regulations

Conformity standards

This hardware was designed and build in conformity with the relevant EC marking and EEC directives :

- "Machine Security" Directive 98/37/EEC (22/06/98).
- "Electromagnetic compatibility" Directive 2004/108/EC
- "Low Voltage" Directive 2006/95/EC



The modification or transformation of this equipment, the adaptation and installation of accessories not recommended by GRAVOTECH MARKING SAS, the installation of this equipment in a manufacturing process, the piloting by a robot, the connection to an external automaton, modify the characteristics of this material and can make it not compliant with the European Directives it is subjected. These modifications voids the responsibility of the manufacturer.
In this case, the person who fits the machine and the equipment is responsible for the EC compliance of the final work station.

Electrical security

This hardware complies with standards EN 60204-1 and EN 60950-1, which also refer to the LASER system safety standard CEI 825-1 (08/2001).

The different fuses of the machine comply with the IEC 127-2 norm (International Electric Committee).

The different security levels the input/output answer are indicated for each connector in the chapter «Rear view of the machine». Two security levels are possible :

- Dangerous voltage (power supply, accessories, plugs ...).
- Very low security voltage.

Machine security

This hardware is in conformity with the norm EN ISO12100-1 and EN ISO12100-2.

Electromagnetic compatibility

This hardware is in conformity with electromagnetic compatibility norms:

- EN 55022 - classe B ; EN 61000-3-2 ; EN 61000-3-3 (emission in residential, commercial, and light industrial environment)
- EN 61000-6-2 (immunity in industrial environment)

All the cables used with this hardware must be in conformity with the electronic compatibility standards, norm EN 55022 - class B.

Electrical security

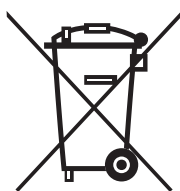


This material is «class 1». The mains plug MUST always be connected to a neutral socket and comply with the regulations in force in the country of installation. If you do not have a plug of this type, have one installed by an approved electrician. Under no circumstances should you depart from this instruction.

The manufacturer bears no responsibility towards any user where alterations have been carried out contrary to the manufacturer's specifications, notably with respect to electrical/electronic elements.



Any operation, other than those mentioned here, must only be carried out by an approved Gravograph technician.
Do not take the machine apart to repair or clean it : this will void your guarantee.



This symbol indicates that once this equipment has reached the end of its useful life, it must not be disposed of with non-sorted municipal waste, in accordance with the European Directive 2002/96/EC.

The equipment must be disposed of at an appropriate collection point for processing, sorting, and recycling of Waste Electrical and Electronic Equipment (DEEE).

The elements which compose Electrical and Electronic Equipment may contain substances which have harmful effects on the environment or on human health.

By following these instructions, you are helping the environment, contributing to the preservation of our natural resources, and protecting human health.

Presentation

Introduction

Thank you for purchasing the **IS900 IQ⁺** machine. Years of testing and refinements have made this unit the ultimate engraving and cutting system.

Thanks to its innovative design with :

- the **IQ⁺** (Intelligence Quotient +) concept, which offers, inter alia, significantly improved displacement speeds and a faster communication machine/PC.
- the **RDF** function (Profile Follow-up) which once activated calculates and adjusts automatically the position of the tool holder for the engraving of plates which are not plane,
- an integrated electronics box easily interchangeable,

and with its performance results (speed, power and engraving areas), the **IS900 IQ⁺** machine combines flexibility and full featured performance without sacrificing simplicity, ease of use, or ease of maintenance.

Using advanced engineering and design features, the **IS900 IQ⁺** machine is truly one-of-a-kind.



To begin with, we highly recommend that this entire manual be read before attempting to use the LASER system. The manual includes important information about safety, assembly, use, and maintenance.



The machine must never be handled without an adult present. Keep the machine, wires and cables out of children's reach.

The IS900 IQ⁺ engraving machine is a high performance machine : All dispositions contributing to the safety of use must imperatively be respected.

Contra-indications



This machine is only designed for engraving, drilling, milling and cutting purposes and must never be used for other applications.

**To use this machine, you are advised to wear protectives glasses against the chip ejections.
Do not use this machine for working with wood.
Do not use this machine in explosive environment.**



This machine is only designed for one user. Do not let several people use the machine simultaneously.

- If the machine is not to be used for a long period, unplug the electricity supply and cover the machine (packaging, cover, lid...)
- Do not move the engraving head by hand unless mechanical block of the machine as described in the paragraph "Mechanical block" of this manual's "Installing" chapter.
- Do not spill any liquids onto the machine (drinks, cleaning fluids...) unless when recommended by GRAVOTECH MARKING SAS (example : lubrication).
- Do not place any object on the machine other than that to be engraved.
- The machine should never be used with anything other than Gravograph accessories and tools.
- Never hold the material to be engraved in your hands. Only use the GRAVOGRAPH clamping systems designed for your machine.
- Make sure that the material is well clamped before starting to engrave.
- During engraving, do not use this machine without a nose (depth regulating nose or vacuum nose) ou carter d'aspiration muni d'une brosse (broche H.F.) in order to avoid projections of swarf.
- Do not take the engraving material out of the machine during engraving.
- If the engraving must be stopped, use the function key provided for this purpose on the keyboard of the machine.



**To avoid any risks of being crushed by the machine during engraving, do not stand near the tools (the travel area of the tool is 25.9" x 17.6" - 635x432mm).
Do not lean over the spindle holder.
Ensure that no one is in the travelling area of the moving parts of the machine and that no object will obstruct the travelling of the moving parts.**



This sign shown on the tool-holder of the machine shows the danger caused by the rotating spindle during engraving (risks of getting burnt or cut).

To avoid any risks of getting burnt, the protective housing (E) of the machine must be always closed, except when carrying out adjustments (if not the machine remains in pause).



As long as the protective housing (E) of the machine is opened, the machine remains in pause. Do not never bypass this safety. When the spindle motor is in rotation, the red LED (J3) is lit.



CAUTION - LASER RADIATION
(pict)
Do not stare into beam
Laser diode - Wavelength: 630-680nm
- Max. Output < 1mW
CLASS 2 LASER PRODUCT



Stages of unpacking



Unpacking should only be done by at least four people or using a lifting device which can take up to at least 200 kg.



Before opening the cardboard box, check that it is the right way up.

After opening the box:

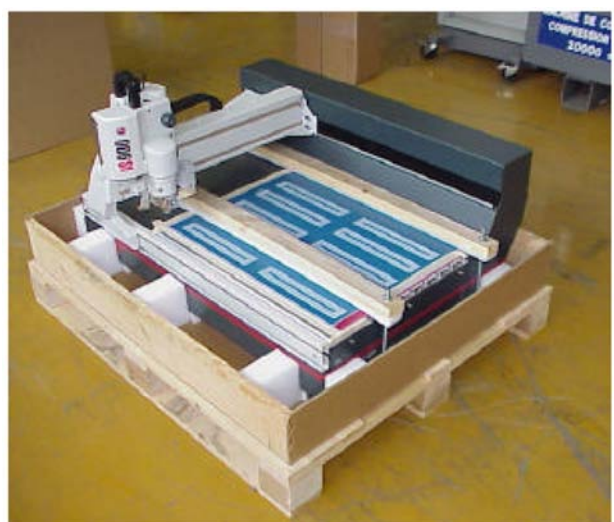
1. **Take out the manual.**
2. **Take out the box of accessories and take off the protective packaging.**
3. **Put the lifting straps into the lifting device (pict.). Then, following the device security rules advised lift the IS900 IQ+ machine and place it onto the work station**
4. **Take off the lifting straps from the lifting device.**



Make sure that no components are missing from the packaging. If any part has been forgotten please get in touch with your GRAVOGRAPH dealer.

Keep all the packaging materials so that you can move your machine in total safety. This packing was conceived to guarantee the protection of the machine during its transport (for a return in repair for example).

This packaging is in conformity with European recycling standards.



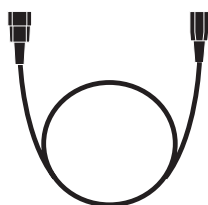
Unpacking - Contents of package



Check the condition of the packaging when you receive it. If there are any signs of damage, inform the carrier and your GRAVOGRAPH dealer immediately by recorded delivery, specifying the exact nature of the problem.

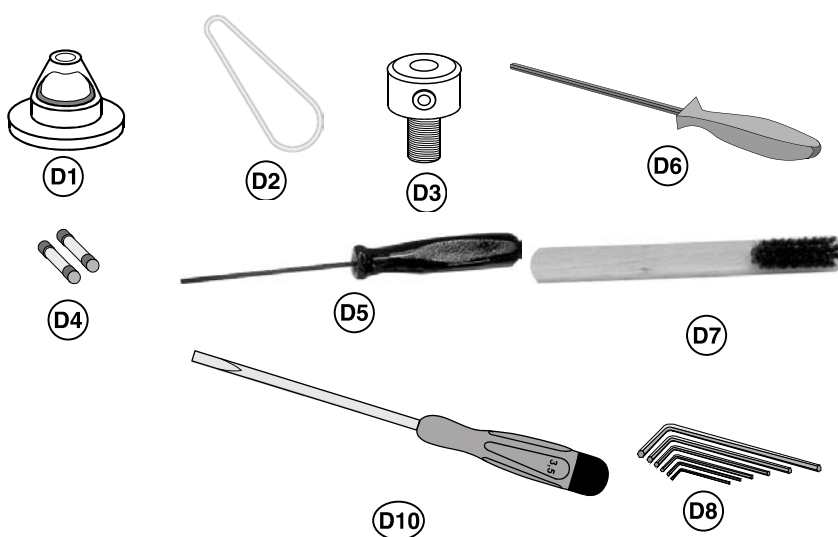
Content of package

- A. An IS900  engraving machine
- C. User instructions (on CD)
- D. A tool box
- E. A power cable
- F. An IS900 IQ+ engraving table - IS electronics box connection cable
- G. An auxilliary connection cable
- P. An USB connection cable
(for the machines which are controlled by PC)
- F1. Two clamps with a tightening key (F2)



Contents of the tool box for a machine with a standard motor spindle - 90W

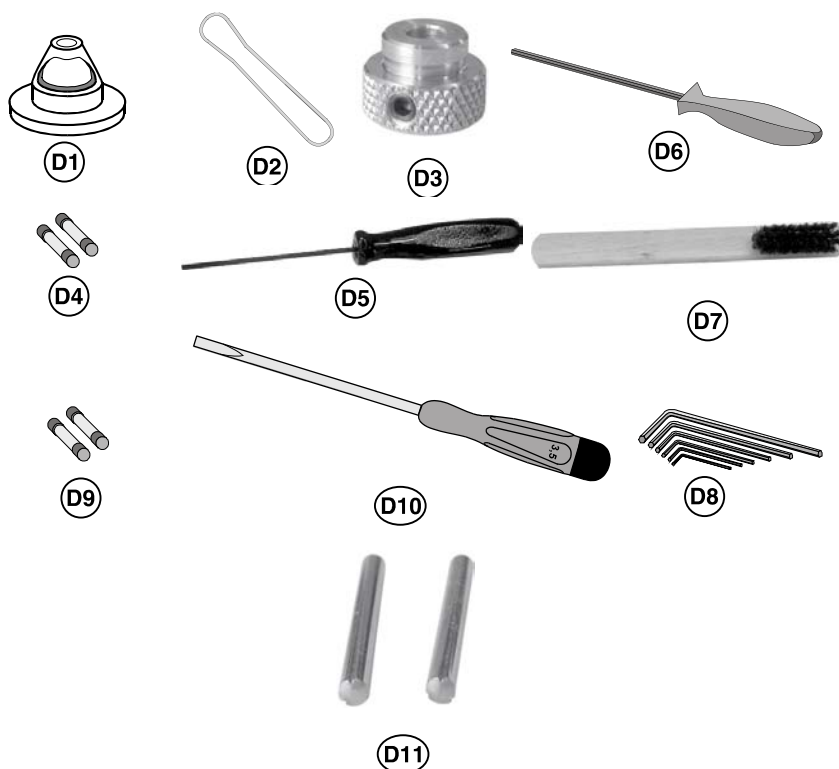
- D1. A depth-regulating nose
- D2. A round and green spindle belt
- D3. A cutter knob
- D4. 2 fuses 10 A **(T*)**
- D5. A short allen key (2 mm)
- D6. A round allen key (3 mm)
- D7. A brush
- D8. 6 keys ...
- D10. A screwdriver (3,5)



(T*) = These fuses are temporized, with a high breaking capacity and comply with the IEC 127-2 norm.

Contents of the tool box for a machine with an optional motor spindle - 200W

- D1. A depth-regulating nose
- D2. A spindle notch belt
- D3. A cutter knob (special collet spindle)
- D4. 2 fuses 10 A **(T*)** (machine)
- D5. A short allen key (2 mm)
- D6. A round allen key (3 mm)
- D7. A brush
- D8. 6 keys ...
- D9. 2 fuses 4 A **(T*)** (200W motor supply)
- D10. A screwdriver (3,5)
- D11. A pair or tightening rods (special collet spindle)



(T*) = These fuses are temporized, with a high breaking capacity and comply with the IEC 127-2 norm.

Description

The **IS900 IQ+** machine is an engraving machine.

It has a keyboard, and a control panel with a L.C.D. screen connecting the software which is in the machine.

Files to be engraved are transferred from the computer to the machine by the intermediary of a cable which is plugged into one of the two ports on the port USB on the **IS900 IQ+**.

The actual engraving process is controlled by the spindle.

The object to be engraved is held by a clamping table (as standard), by a vice (optional) or by any other system recommended by GRAVOTECH MARKING SAS (consult your GRAVOGRAPH dealer for more information on systems available).



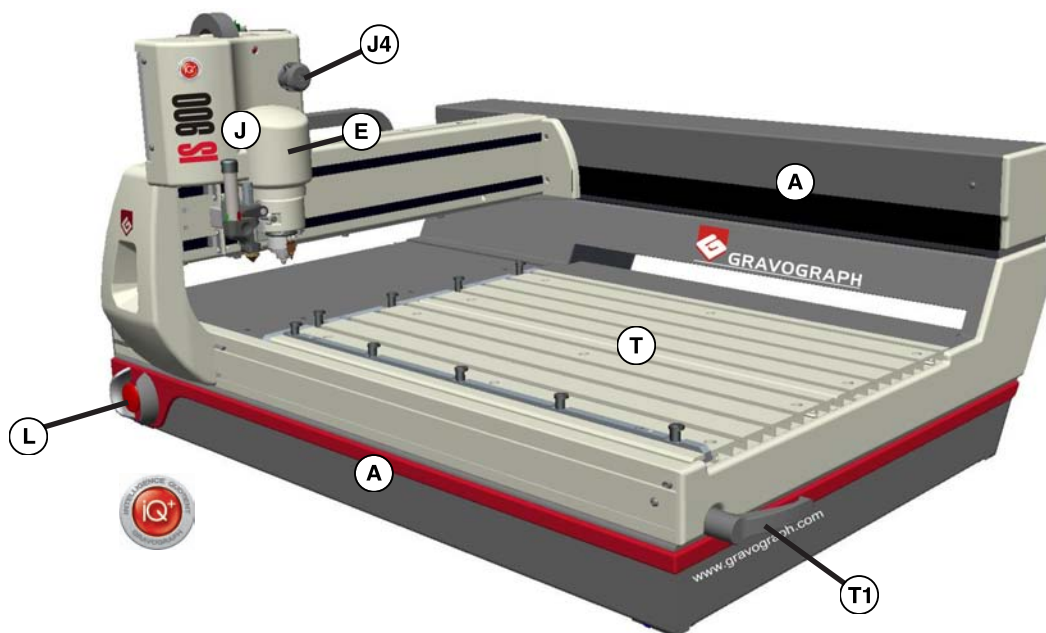
This machine profits from a new technology, the IQ+ concept (Intelligence Quotient +), which offers, inter alia, a considerable improvement speeds of displacement as well as a faster communication machine/PC.



The IS900 IQ+ machine has a maximum engraving surface area of 635 x 432 mm. The IS900 IQ+ engraving machine is a high performance machine : All dispositions contributing to the safety of use must imperatively be respected.

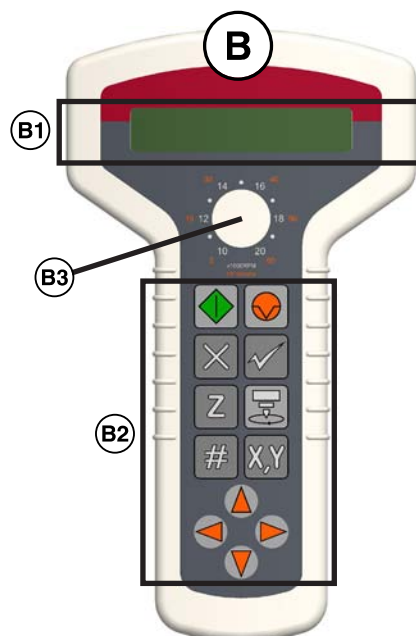
Front view of the machine

Engraving table



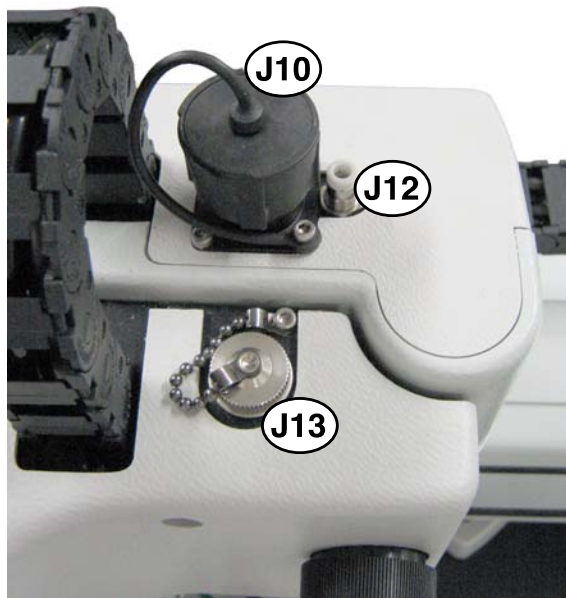
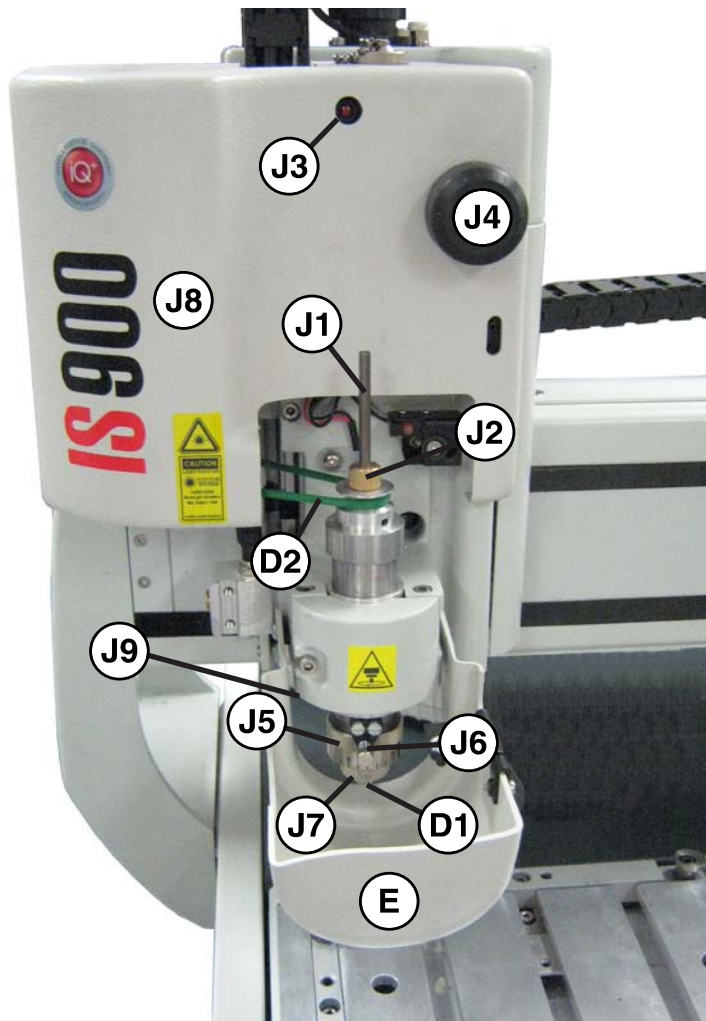
IS900 IQ+

- A. Base
- B. Control panel :
 - B1. L.C.D. screen
 - B2. 12-key control keyboard
 - B3. Spindle rotation speed adjustment
- J. Tool holder
- T. Clamping table :
 - T1. Tightening handle of the clamps
- E. Protective housing
- J4. Adjustment knob of the spindle pressure (6 positions)
- L. Main stop button



Tool holder - standard motor - 90W

- J1. Cutter
- J2. Cutter button
- J3. Red LED indicating the rotation of the spindle
- J4. Adjustment knob of the spindle pressure (6 positions)
- J5. Scaled knob
- J6. Index finger
- J7. Nose nut
- D1. Depth regulating nose
- D2. Spindle belt (round and green)
- J8. Spindle motor 90W
- J9. LASER diode
- J10. Connection variator - 150W High Frequency spindle motor (option)
- J12. Pneumatic connector - 150W H.S. spindle air fan (option)
- J13. Auxiliary connection (option)



This sign shown on the tool-holder of the machine shows the danger caused by the rotating spindle during engraving (risks of getting burnt or cut). To avoid any risks of getting burnt, the protective belt housing (E) of the machine must be always closed, except when carrying out adjustments (if not the machine remains in pause).



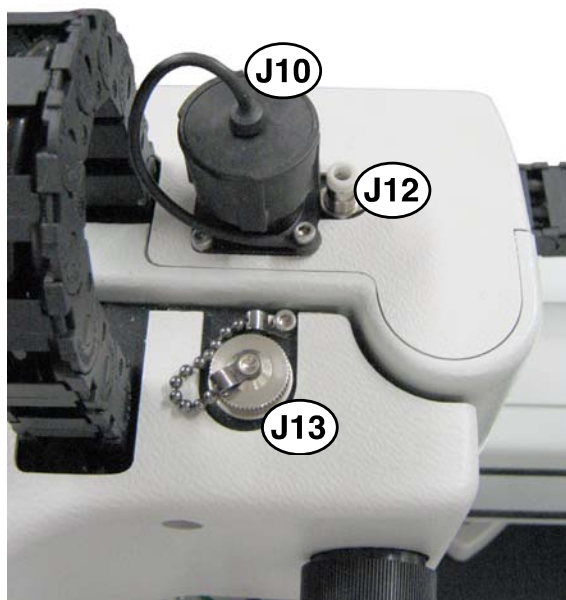
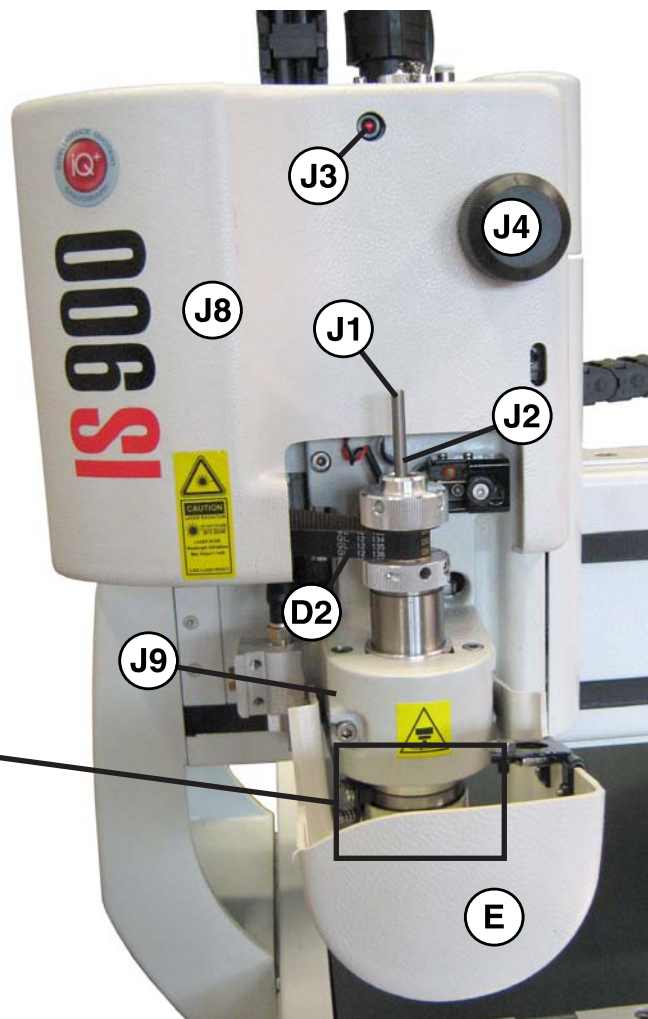
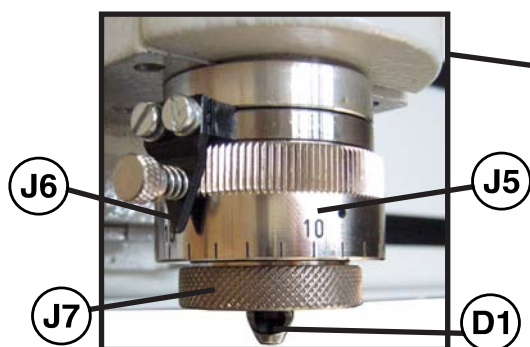
As long as the protective housing (E) of the machine is opened, the machine remains in pause. Do not never bypass this safety. When the spindle motor is in rotation, the red LED (J3) is lit.



CAUTION - LASER RAD
Do not stare into beam.
LASER diode - Wavelength: 630-680nm - Max. Output < 1mW
CLASS 2 LASER PRODUCT.

Tool holder - optional motor - 200W

- J1. Cutter
- J2. Cutter button (special collet spindle)
- J3. Red LED indicating the rotation of the spindle
- J4. Adjustment knob of the spindle pressure (6 positions)
- J5. Scaled knob
- J6. Index finger
- J7. Nose nut
- D1. Depth regulating nose
- D2. Spindle belt (notch belt)
- J8. Spindle motor 200W
- J9. LASER diode
- J10. Connection variator - 150W High Frequency spindle motor (option)
- J12. Pneumatic connector - 150W H.S. spindle air fan (option)
- J13. Auxiliary connection (option)



This sign shown on the tool-holder of the machine shows the danger caused by the rotating spindle during engraving (risks of getting burnt or cut). To avoid any risks of getting burnt, the protective belt housing (E) of the machine must be always closed, except when carrying out adjustments (if not the machine remains in pause).

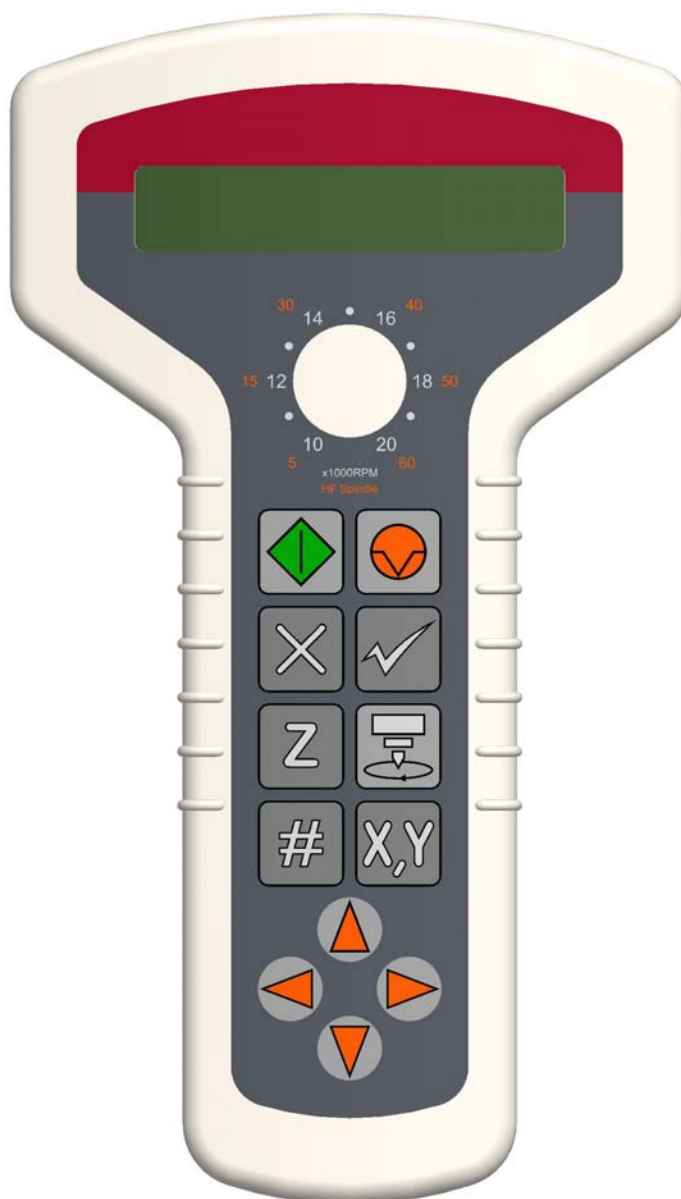
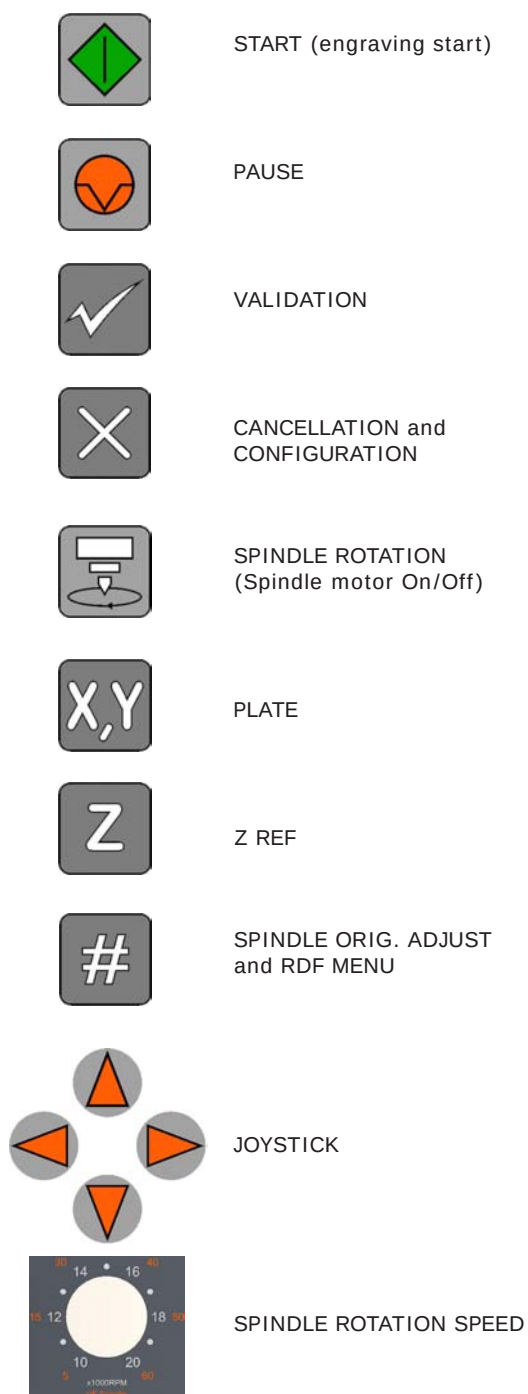


As long as the protective housing (E) of the machine is opened, the machine remains in pause. Do not never bypass this safety. When the spindle motor is in rotation, the red LED (J3) is lit.

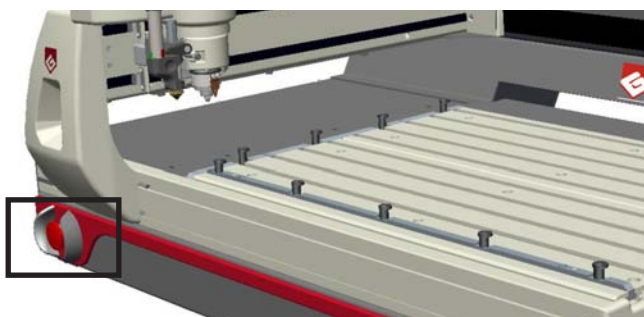


CAUTION - LASER RAD
Do not stare into beam.
LASER diode - Wavelength: 630-680nm - Max. Output < 1mW
CLASS 2 LASER PRODUCT.

Control panel



On the engraving machine



Clamping table

The IS900 IQ+ machine is supplied with a mounted clamping table (T) with a tightening handle (T1).
The clamping table (T) allows to hold a flat and large object to be engraved.



Vice (option)

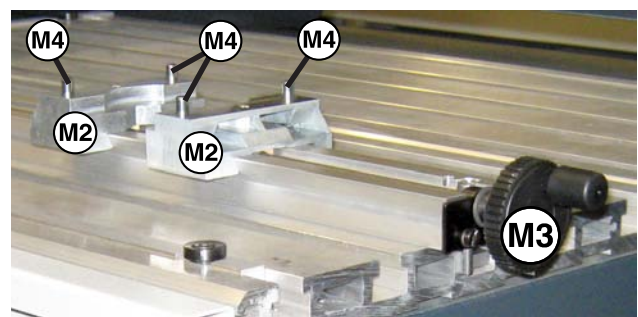
The vice allows to hold odd shaped and small objects to be engraved (small volume).

To mount the vice onto the clamping table :

1. Place and fix the vice onto the clamping table. Do not place it onto the two first grooves (1 and 2) on the left.

To mount a pair of jigs onto the vice :

1. Open the jaws (M2) by turning the tightening knob (M3) anti-clockwise.
Open them far enough so as to mount the jaws easily.
2. Push the jigs (T) firmly onto the pins (M4) of the jaws (M2).



Rear view of the machine



Each connection responds to one of the following security levels :
- **Dangerous voltage.**
- **Very low security level.**

Engraving machine connections :

- N1 - Links the engraving table with the IS electronics box - **Very low security level**
- N2 - Auxiliary connection (option) - **Very low security level**
- N3 - External spindle connection (option) (200W spindle or 150W H.F. spindle) - **Very low security level**
- N4 - Pneumatic supply for the air fan (air seal) of the H. F. spindle (option)
- N5 - Passage for the adjustable oil-projection tube of the GRAVOGRAPH lubrication system (option)
- N6 - Plug for accessories (5 A max.) - **Dangerous voltage**



The (N6) plug can only be used with appliances working on 5 A max. and fitted with an integrated protection against overload.

- N7 - Mains supply plug with a drawer of **2 fuses 10 A (T*) 250 V - Dangerous voltage**



(T*) = These fuses are temporized, with a high breaking capacity and comply with the IEC 127-2 norm.



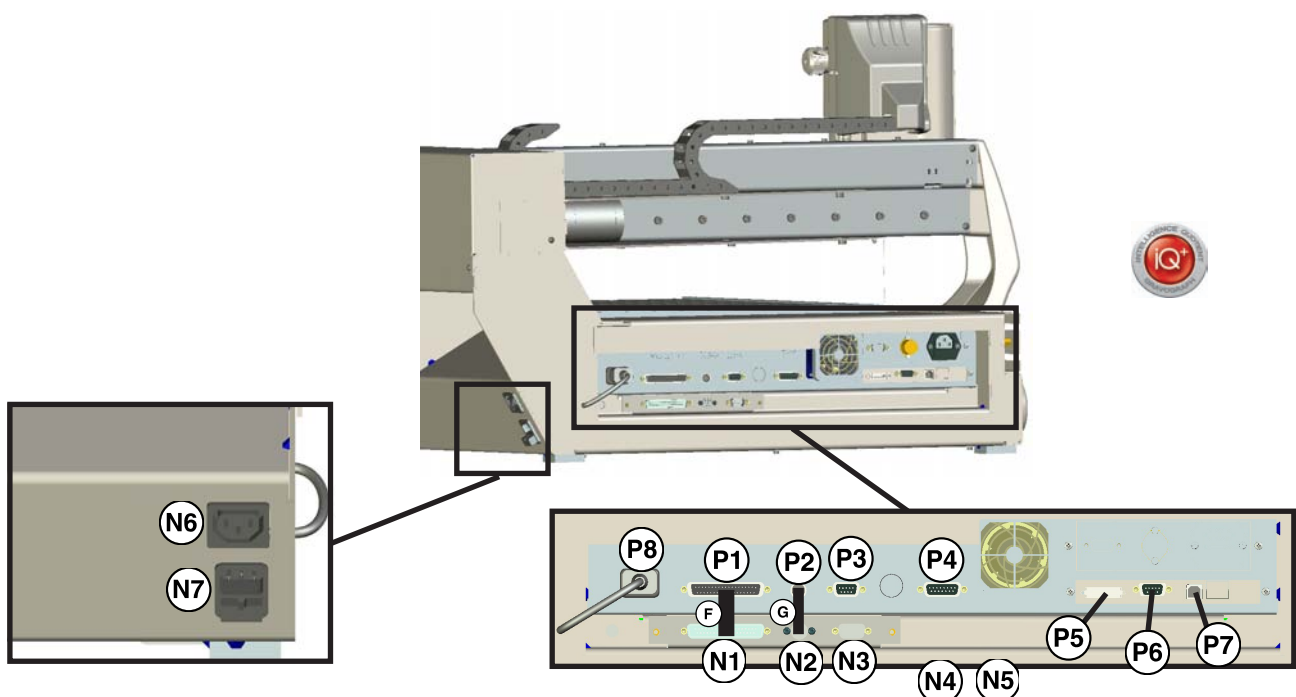
The machine must always be switched off before connecting or disconnecting a cable as indicated on label **(E1)** displayed on the back of the machine :



NE PAS CONNECTER / DECONNECTER
SOUS TENSION
DO NOT CONNECT / DISCONNECT
WHEN THE MACHINE IS ON

IS electronics box connections:

- P1 - Links the engraving table with the IS electronics box - **Very low security level**
- P2 - Auxiliary connection (option) - **Very low security level**
- P3 - External spindle connection (option) (200W spindle or H.F. 150W spindle) - **Very low security level**
- P4 - Standard Inputs /Outputs - **Very low security level**
- P5 - Parallel port - **Very low security level**
- P6 - Connection to the control panel - **Very low security level**
- P7 - USB port - **Very low security level**
- P8 - IS electronics box power supply - **Dangerous voltage**



200W motorization connections (option) :

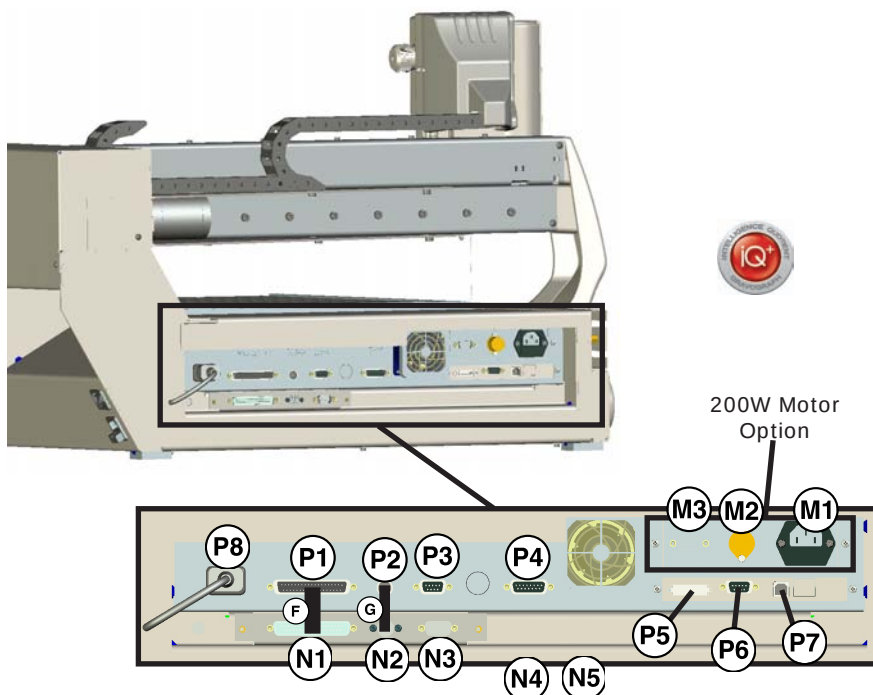
M1 - 200W option motor power supply with a drawer of **2 fuses 4 A (T*) 250 V - Dangerous voltage**



(T*) = These fuses are temporized, with a high breaking capacity and comply with the IEC 127-2 norm.

M2 - 200W spindle motor connection (option) - **Dangerous voltage**

M3 - 200W spindle motor connection (option) - **Very low security level**



The machine must always be switched off before connecting or disconnecting a cable as indicated on label (E1) displayed on the back of the machine :

(E1)



NE PAS CONNECTER / DECONNECTER
SOUS TENSION
DO NOT CONNECT / DISCONNECT
WHEN THE MACHINE IS ON

Installing



Physical installation and electrical installation (connections) must only be carried out by an approved GRAVOGRAPH technician.
Before carrying out the following operations, make sure the machine is switched off and unplugged, switch (L) to position 0.

Physical installation advice

- Put the Gravograph machine onto a stable flat, clean surface **with mini. sizes of 1015 x 750 mm.**
Make sure the machine is well-ventilated. Do not prevent the air circulation under the machine.



We recommend to you the use of the support (S) especially conceived for the machine IS900 IQ+.



- Normal lighting is sufficient to use the machine.
- Clear the work surface so that you can
 - easily and quickly access all external parts of the machine,
 - quickly gain access, in case of necessity, the general shutdown button **(L)** of the machine,
 - make sure that all moving parts of the machine have enough room to move freely,
 - avoid any accidental unplugging of the cables.



The machine's power supply cable being used as a sectioning device, it must be easily accessible and the wall plug must be installed near the machine and must also be easily accessible.



The connectors screws must be very tight to avoid accidental disconnection of the cables while the machine is turned on as this could permanently damage the electronic cards (label **(E1)).**

- Protect Gravograph equipment against :
 - Moisture (rain, snow, condensation...),
 - Heat (direct sunlight, heating...),
 - Brusque temperature changes,
 - Dust (exhaust pipe),
 - Liquid splashes, spillages on the electronic rack, cables and connections, and any other part of the machine; unless recommended by GRAVOTECH MARKING SAS (ex. : lubrication),
 - Vibrations,
 - Electric or electronic radiation.

Electric installation advice



This material is «class 1». The mains plug MUST always be connected to a neutral socket and comply with the regulations in force in the country of installation. If you do not have a plug of this type, have one installed by an approved electrician. Under no circumstances should you depart from this instruction.

In order to avoid outside interference, the user is advised to carry out the following points.

- Plug the Gravograph machine into a mains line, avoiding having several machines on the same line (several plugs on the same line or using a multi-plug).

Exception : **If other things are connected to the machine (such as a computer and the IS900 IQ+ engraving machine), the machines should be connected to the same mains line.**

- Avoid using the same line to supply inductive or capacitive machines as well as the Gravograph machine (motors, electrosuices, chargers...)
- Avoid using a manual or automatic commutator on the same mains line as the Gravograph machine (relay, temporiser, programmer, automatic circuit interrupter, automatic interrupter...).
- Check that machines surrounding your Gravograph machine are in conformity to the norms of radioelectric perturbation emissions (consult the technical leaflet of each machine). If they are not in conformity, place them as far away as possible from the Gravograph machine.
- Only use Gravograph accessories.



The machine must always be switched off before connecting or disconnecting a cable (label E1).

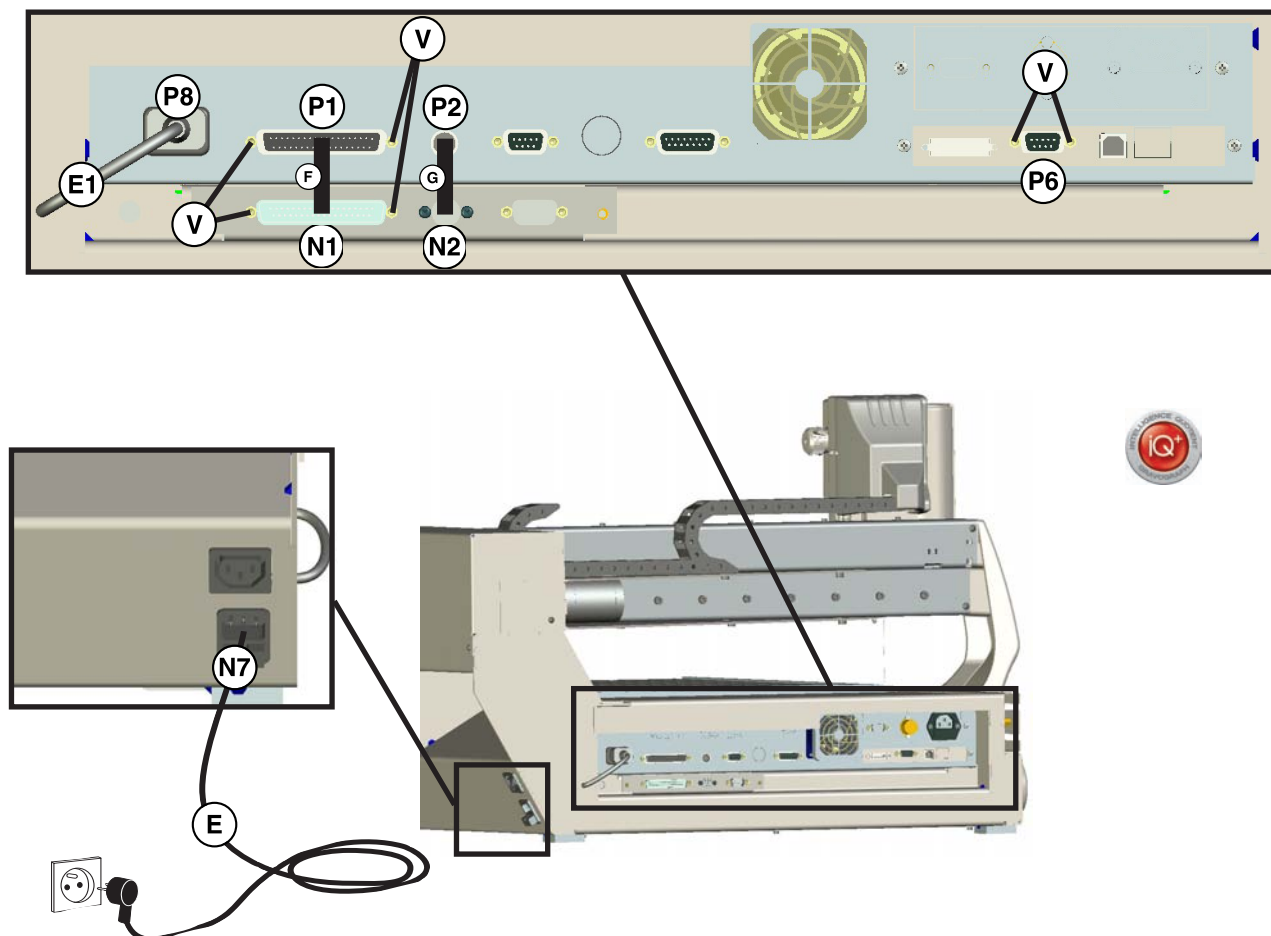


NE PAS CONNECTER / DECONNECTER
SOUS TENSION
DO NOT CONNECT / DISCONNECT
WHEN THE MACHINE IS ON

Electrical connections of the machine

Machine with a standard spindle - 90W motor

Position yourself behind the machine.



1. Plug in the engraving table-IS electronics box connection cable (F), first to the IS electronics box (P1) box, then to the engraving table (N1). Tighten the screws (V) using the screwdriver (3.5).
2. Plug in the control panel cable to the IS electronics box (P6). Tighten the screws (V) using the screwdriver (3.5).



It is imperative to set the screws (V) tight to avoid any accidental disconnection of the cables while the machine is turned on, as this could permanently damage the electronic cards (label (E1)).

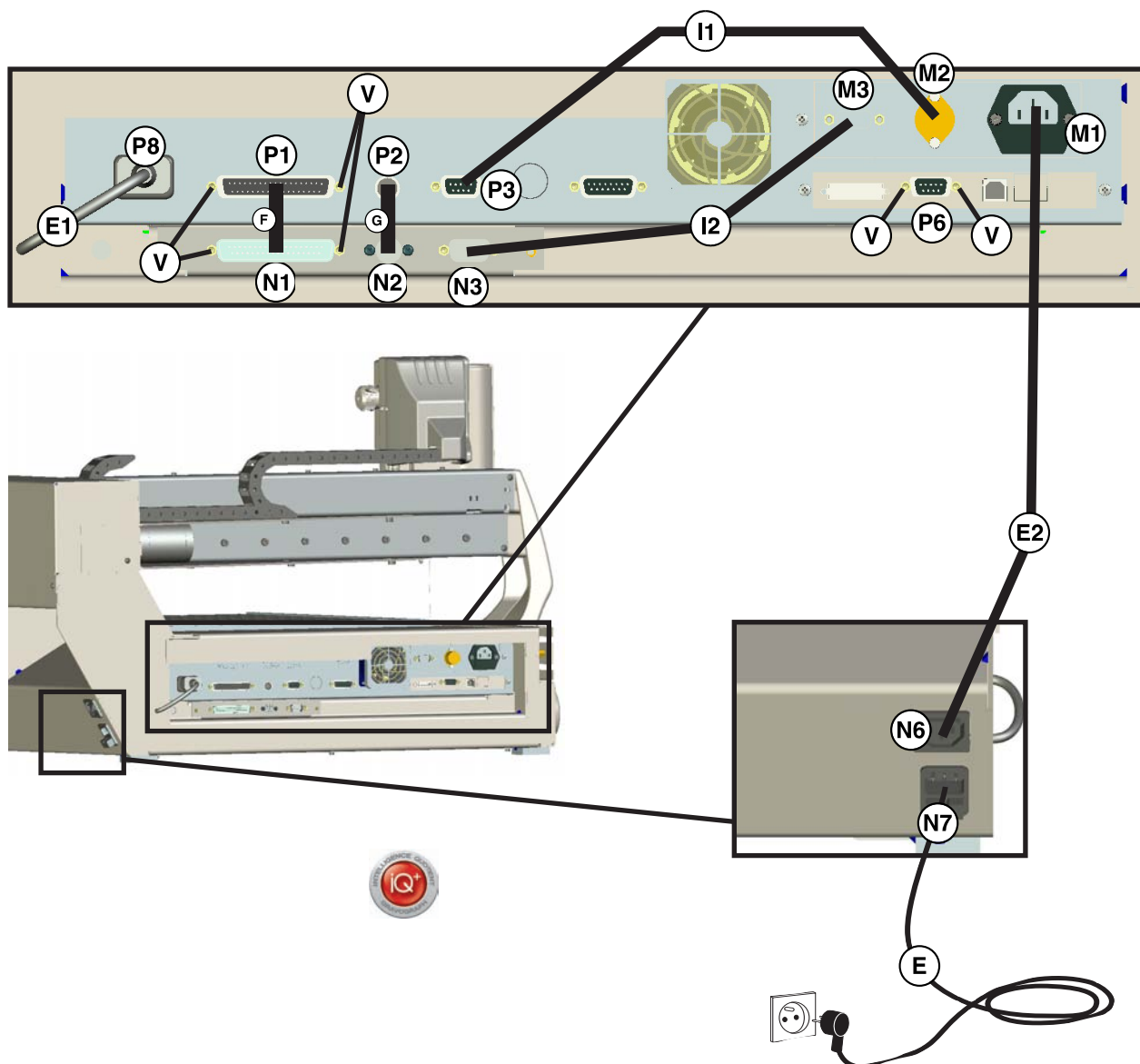
3. Check that the connector (P2) is well connected with the connector (N2) with the cable (G).
4. Check that the power supply cord (E1) of the IS900 IQ+ machine is well connected on the power supply (P8) of the IS electronics box of the machine.
5. Plug power supply cord (E) into the engraving machine (N7) and then into the mains socket.



To cut off the mains supply to your machine in the case of severe problems, unplug the mains cable (E) or switch off the machine with the main stop button (L) at the side of the machine. Make sure that you can reach them easily.

Machine with the optional spindle - 200W motor

Position yourself behind the machine.



Carry out in first the connections as for a machine been driven by an engine of standard spindle 90W, while following the first 4 stages of the procedure described on the preceding page (Do not immediately connect the power supply cord (E) into the mains socket). Then carry out the following procedure :

5. Connect the connectors (P3) (external spindle) and (M2) (200W motor option) with the cable (I1).
6. Connect the connectors (N3) (external spindle) and (M3) (200W motor option) with the cable (I2).



It is imperative to set the screws (V) tight to avoid any accidental disconnection of the cables while the machine is turned on, as this could permanently damage the electronic cards (label (E1)).

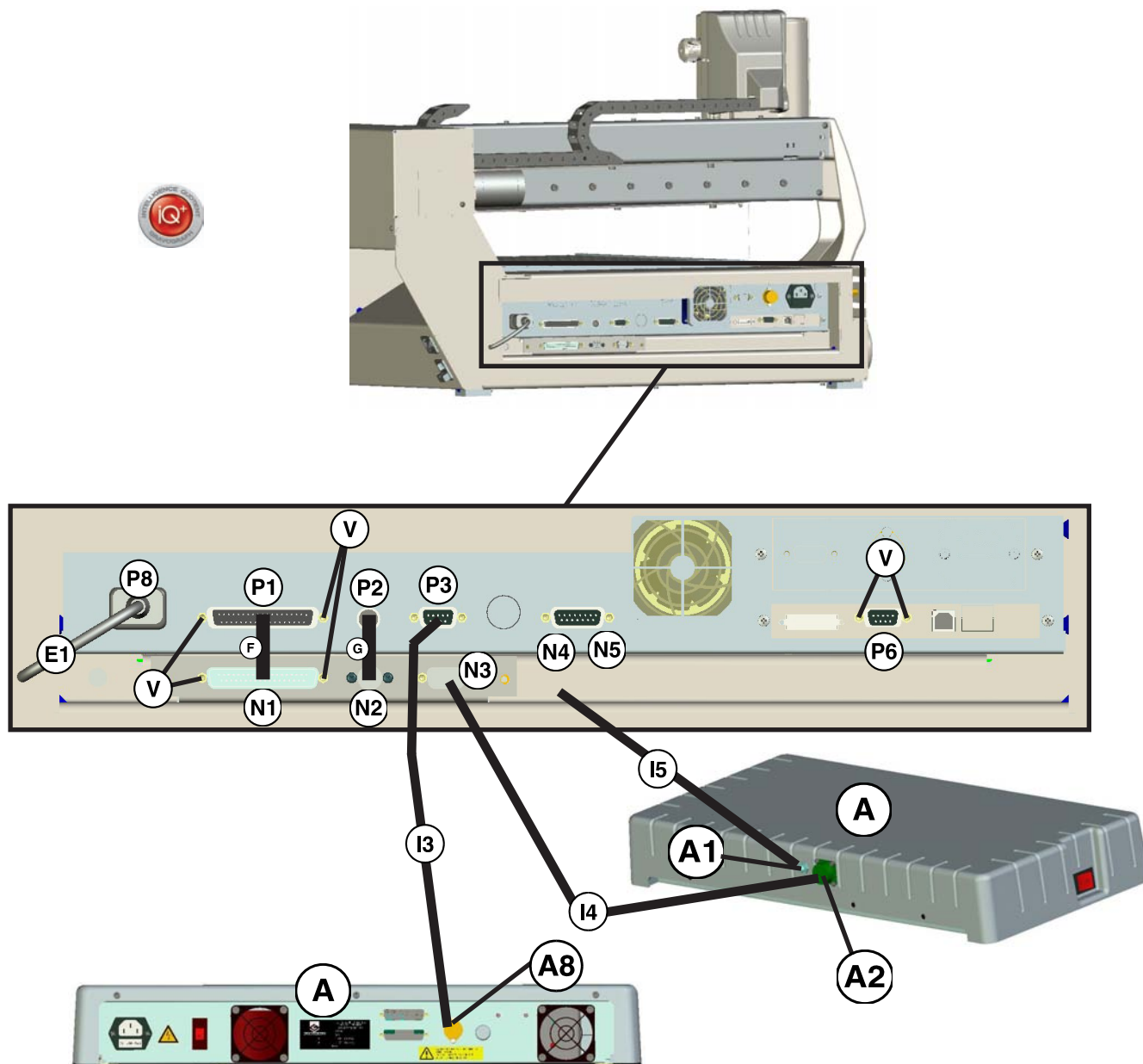
7. Plug power supply cord (E2) into the 200W option motor power supply (M1) and then into the plug (N6) for accessories supply.
8. Plug power supply cord (E) into the engraving machine (N7) and then into the mains socket.



To cut off the mains supply to your machine in the case of severe problems, unplug the mains cable (E) or switch off the machine with the main stop button (L) at the side of the machine. Make sure that you can reach them easily.

Machine with the High Frequency spindle 150W - Option

Position yourself behind the machine.



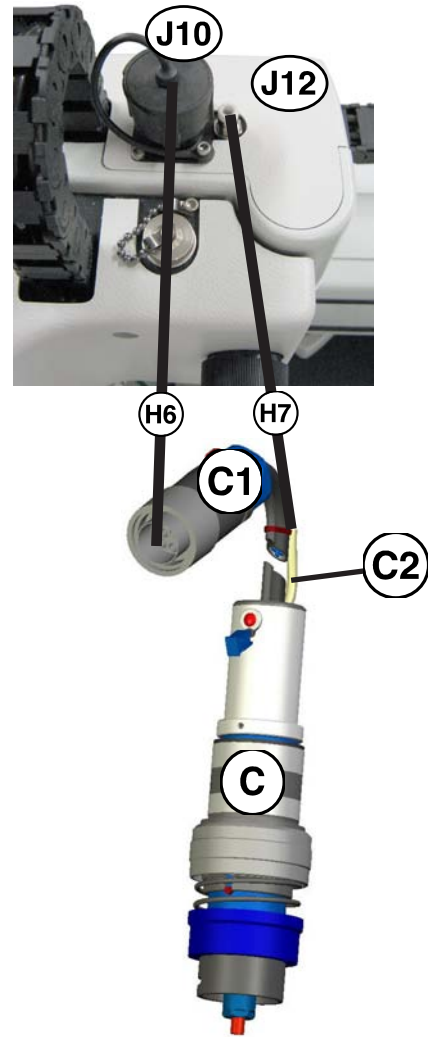
Carry out in first the connections as for a machine been driven by an engine of standard spindle 90W, while following the first 4 stages of the procedure described on the page 20. (Do not immediately connect the power supply cord (E) into the mains socket). Then carry out the following procedure :

5. Connect the connectors (P3) (external spindle) and (A8) (150W H.F. spindle option) with the cable (I3).
6. Connect the connectors (N3) (external spindle) and (A2) (150W H.F. spindle option) with the cable(I4).

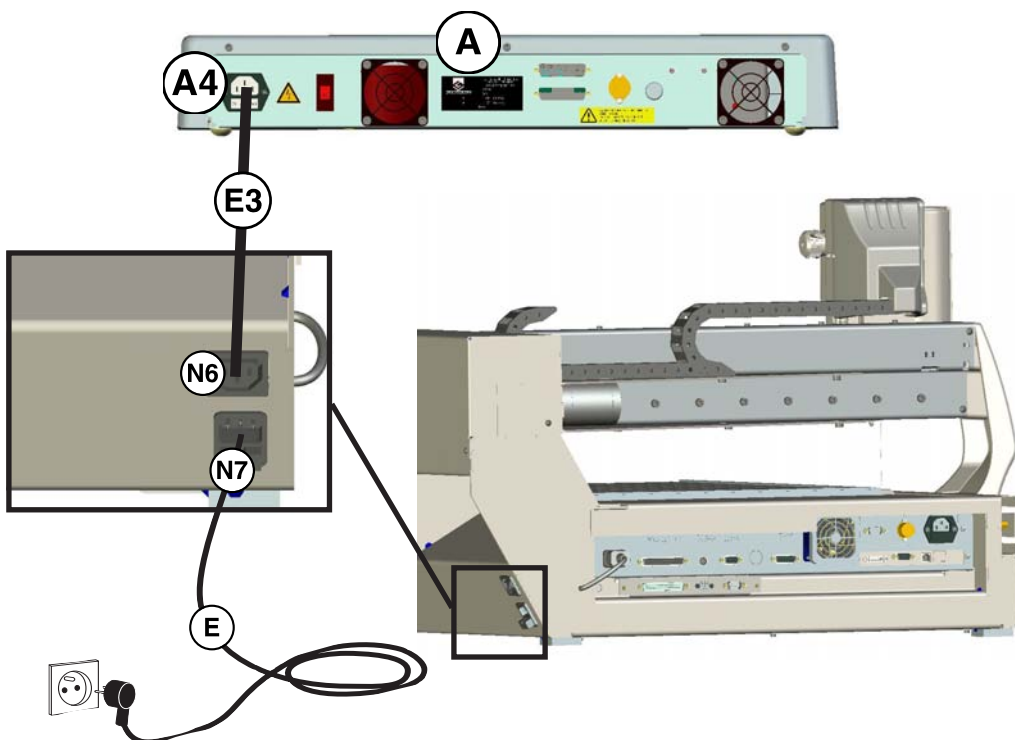


It is imperative to set the screws (V) tight to avoid any accidental disconnection of the cables while the machine is turned on, as this could permanently damage the electronic cards (label (E1)).

7. Connect the pneumatic connectors (A1) of the frequency converter (A) (H.S. spindle air fan) and (N4) of the machine with the pneumatic tube (I5).



8. Connect the pneumatic connectors (J12) above the tool holder (H.S. spindle air fan) and (C2) of the 150W HF spindle (150W HF spindle option) with the pneumatic tube (H7).
9. Connect the connectors (C1) (HF spindle) and (J10) (150W HF spindle option) with the cable (H6).



10. Plug power supply cord (E3) into the power supply connector (A4) of the converter (A) and then into the plug (N6) for accessories supply.
11. Plug power supply cord (E) into the engraving machine (N7) and then into the mains socket.



To cut off the mains supply to your machine in the case of severe problems, unplug the mains cable (E) or switch off the machine with the main stop button (L) at the side of the machine. Make sure that you can reach them easily.

Connecting the IS900 IQ+ machine to a PC



The computer and the IS900 IQ+ machine must be switched OFF.



PC computers and the WINDOWS® graphic environment being very widespread throughout the world, we have based ourselves on these products to define the installation and use procedures of the IS900 IQ+.

If you don't have equipment which is compatible and you encounter some problems of installation or use, contact your Gravograph agent.

Connection cables

- Use Gravograph connection cables (consult your Gravograph distributor for the products available).

These cables are adapted for the machines to which they will be connected.

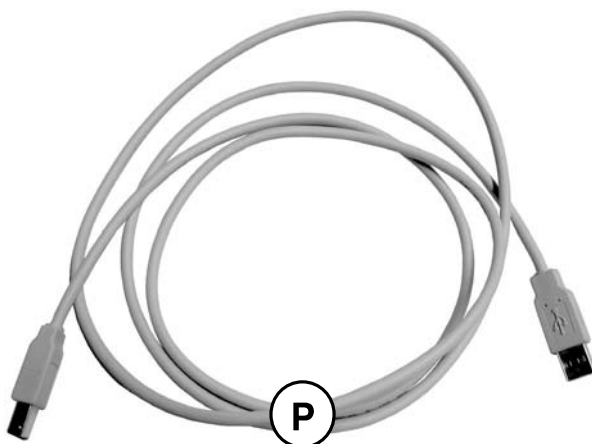
They must be in conformity with the electromagnetic compatibility standards, norm EN 55022 - class B and protect from external electric "attacks" (conform to the norms of immunity and CEM susceptibility).

- Do not use cables which are too long. Keep the machines as close as possible and use a short a cable as possible.
- Separate the mains cable and the transmission cable (avoid connecting the transmission and mains cables to the same socket, etc ...).

Follow the connection procedure depending on the transmission cable supplied with the IS900 IQ+.

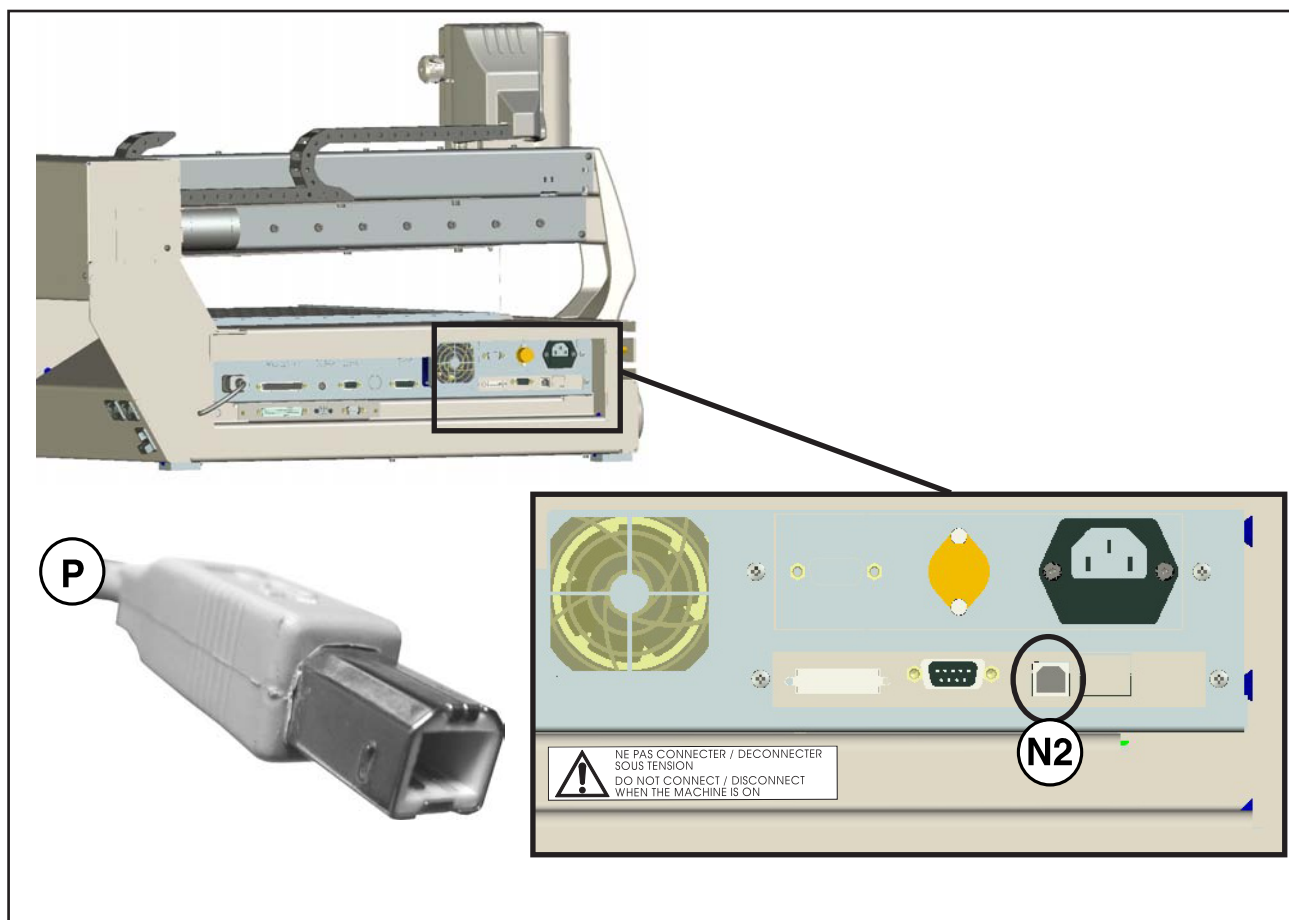
The machine is delivered with the following cable :

- USB cable (P)



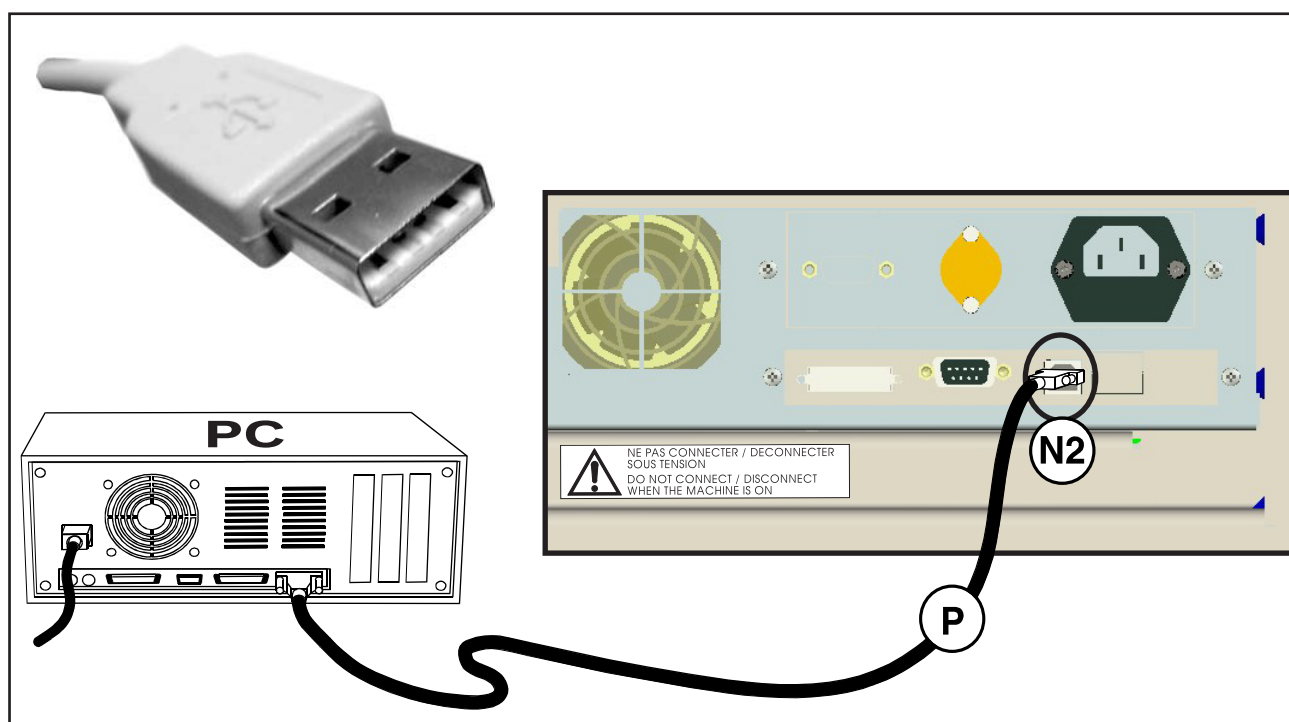
IS900 IQ+ / PC connection using the USB port

1. Plug the USB cable (P) into the USB port (N2) of the machine (pict.).



2. Plug the USB cable (P) into the USB port of the PC.

Refer to the installation manual of the computer for the USB port (1.1).



Switching the machine on

Turn and pull the machine main stop button (L).

Après quelques secondes, The machine will then emit a short «beep». The following message will be displayed on the L.C.D. screen of the machine :

<< GRAVOGRAPH >>
VERSION XX.XX



Leave the machine plugged in even if it is not in constant use.

Problems

If one of the operational signs is absent, check the following points :

- Are the two ends of the mains cable correctly connected ?
- Is the mains plug connected ? Is it live ?



If the machine does not come on, before calling a technician, please check power connections to the mains socket and also the fuses (see "Changing the fuses")..

Switching the machine off

Press on the main stop button (L).

Switch off the machine for the following reasons :

- if you are leaving the workstation (end of the day, for example),
- physical damage (fall, fire, liquids coming into machine...),
- mechanical/electrical/electronic faults, leading to a possible breakdown,
- in case of major problem or mechanical block of the machine,
- to reboot,
- for external cleaning.

Mechanical block

In the following cases :

- danger for the operator,
- block on the support to be engraved,
- block on an object placed in the work area,

- 1. Cut the power supply by pressing on the main stop button (L).**
- 2. Free the tool, without switching the machine on, by manually and slowly moving the tool holder as required.**
- 3. Only switch the machine back on after ensuring that the tool's moving area is totally clear.**

Switching on again

If the machine or the programme which runs it crashes you may have to reboot the machine.

If this happens, switch the machine off. Wait 30 seconds and switch it on again.



Respect this rule. This time allows any electric shock to the machine, possibly damaging the power supply, to be avoided.

Machine configuration (language)

1. Switch on the IS900 IQ+ machine (turn and pull the machine main stop button (L)).

A first message will be displayed on the screen :

<< GRAVOGRAPH >>
VERSION XX.XX

This message will be displayed for about 3 seconds. During that time press

LANGUAGE : ENGLISH
to modify



If this screen does not appear after having pressed , switch the IS900 IQ+ machine off, wait a few seconds, switch it on again, then start the configuration procedure from the beginning.

2. Select the language desired.

When you receive your IS900 IQ+ machine it is configured to display the messages in English.

To choose the language desired press  as many times as necessary.

The selected language is displayed on the screen.

To validate your choice press

The following message is displayed on the L.C.D. screen :

IS900 IQ
to select

3. Select the IS900 IQ+ machine

The programme used by the IS900 IQ+ machine is also used by other GRAVOGRAPH machines.

To choose the machine desired press  as many times as necessary.

The selected machine is displayed on the screen.

To validate your choice press

Press

The following message is displayed on the L.C.D. screen :

<< GRAVOGRAPH >>
VERSION XX.XX

Wait a few seconds.

The following message is displayed on the screen :

< READY TO RECEIVE >

Press

Release the key when the tool-holder of the IS900 IQ+ machine starts to move.

The machine configuration that you have carried out is saved. In this way the display language that you have just chosen will be taken into account each time you switch the machine on.

4. Switch the machine off (press on the machine main stop button (L)).

Make the IS900 IQ⁺ machine ready to engrave with GravoStyle 5

1. Check that your computer has the minimum required configuration :

Computer	Minimum configuration	Recommended configuration
Microprocessor	Intel® Pentium™ IV	Intel® Core™2 Duo
Frequency	3.0 GHz	2.4 GHz
Memory	1 GB	2 GB
Internal hard-drive	1 GB available	2 GB available
Internal DVD reader	4X DVD-ROM	16X DVD-ROM
Mouse	2 buttons Windows compatible	2 buttons + scroll wheel Windows compatible
Keyboard	Windows compatible	Windows compatible
Ports	2 USB ports available: • Dongle • Machine	4 USB ports available: • Dongle • Machine 1 • Machine 2 • Machine 3
Graphic card	NVIDIA or ATI Radeon 128 MB	NVIDIA or ATI Radeon 256 MB
Monitor	17" - 1024 * 768 pixels	22" - 1280 * 1024 pixels
Peripherals		Printer Twain scanner
Additional software	Internet Explorer 6	Internet Explorer 7

Operating Systems	32 bits version	64 bits version
Windows Vista SP1 	COMPATIBLE	COMPATIBLE
Windows XP SP3 	COMPATIBLE	COMPATIBLE
Windows 2000 	<u>NOT COMPATIBLE</u>	Does not exist
Windows 98 	<u>NOT COMPATIBLE</u>	Does not exist

2. See the chapter "Make a Gravograph rotary machine ready to engrave" in the appendix "Gravograph Machines Soft setup" in order to install the GT Smartstream 3.xx driver and the GravoStyle 5 engraving software on your PC.

Then add the IS900 IQ machine in the "Installed printer list" of the GravoStyle 5 engraving software.

Engraving

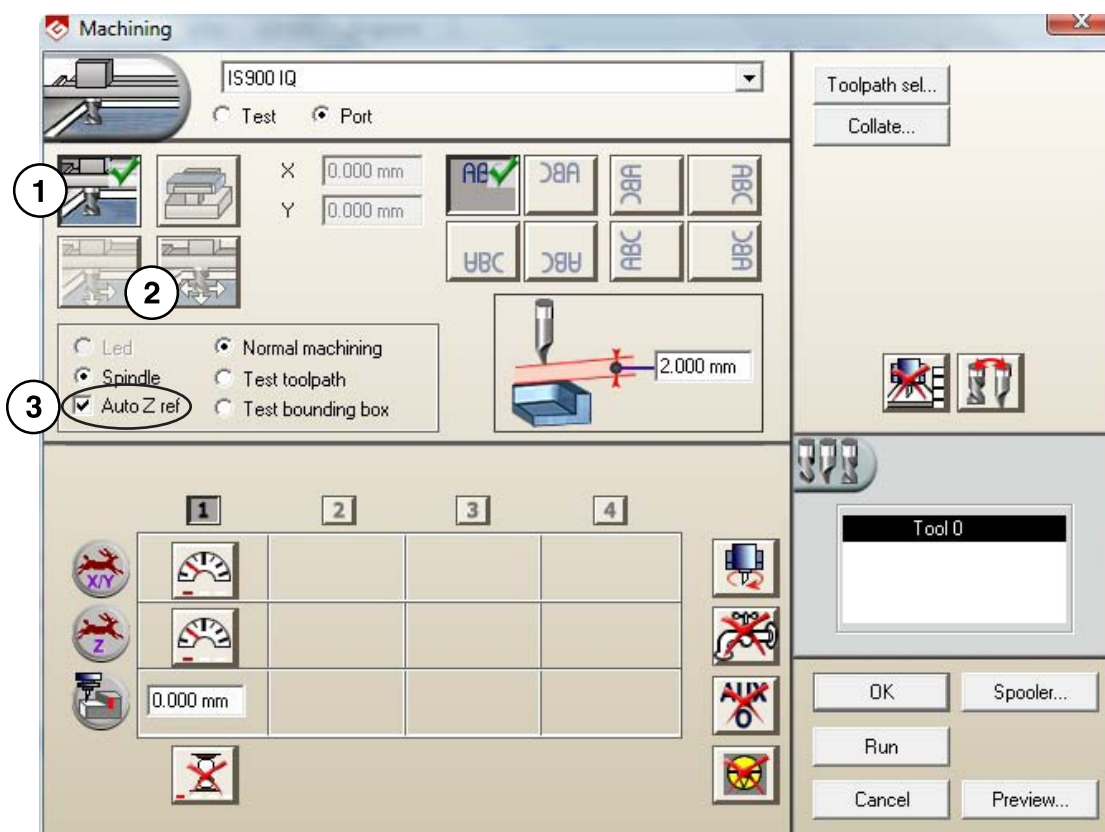
You have just created a composition with your engraving software.

1. Switch on the machine and wait a few seconds.

The following message will appear on the screen of the machine :

< READY TO RECEIVE >

2. In the engraving programme, make sure that you have indicated the good engraving parameters, the good machine parameters, the Z speed and the engraving orientation :



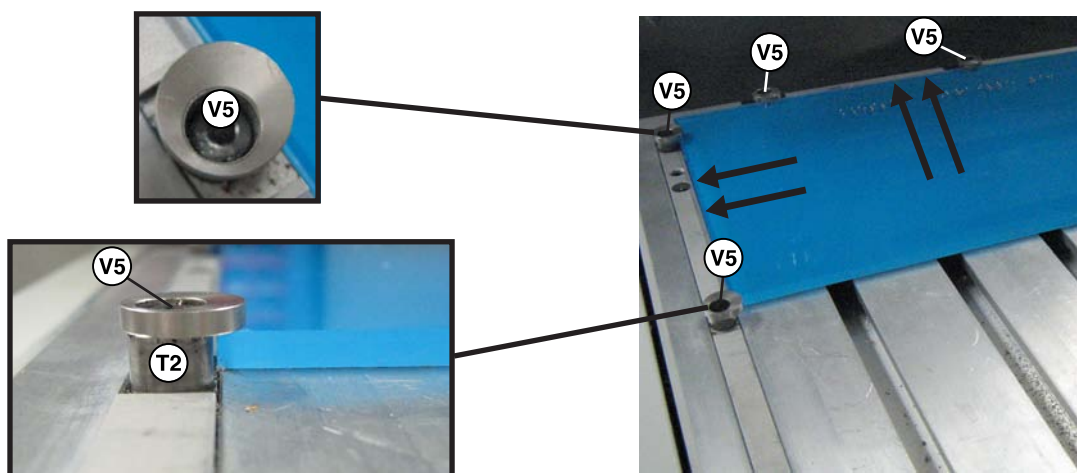
For a flat engraving, you should select the function (1) in order to activate the automatic ZRef. function (3)

You could indicate a personalized origin (2) to use the "point and shoot" function.

Positioning the plate on the clamping table

Clamping a new plate with a different thickness :

3. Lower the handle (T1) (clamping position) on the table.
4. Place the plate against the clamps (plate in the top left-hand corner). If necessary, untighten the screws (V5), with the round allen key (D6) supplied with the machine to slide the plate easily under the clamps (T2)
5. Tighten the screws (V5) till the plate is held tightly in place.



Do not tighten the screws (V5), excessively: this may damage the clamp spring after frequent uses.



6. Also use the clamps (F1) delivered with the machine.

If the plate is correctly tightened, noise and vibrations are reduced to a minimum when the machine is engraving.



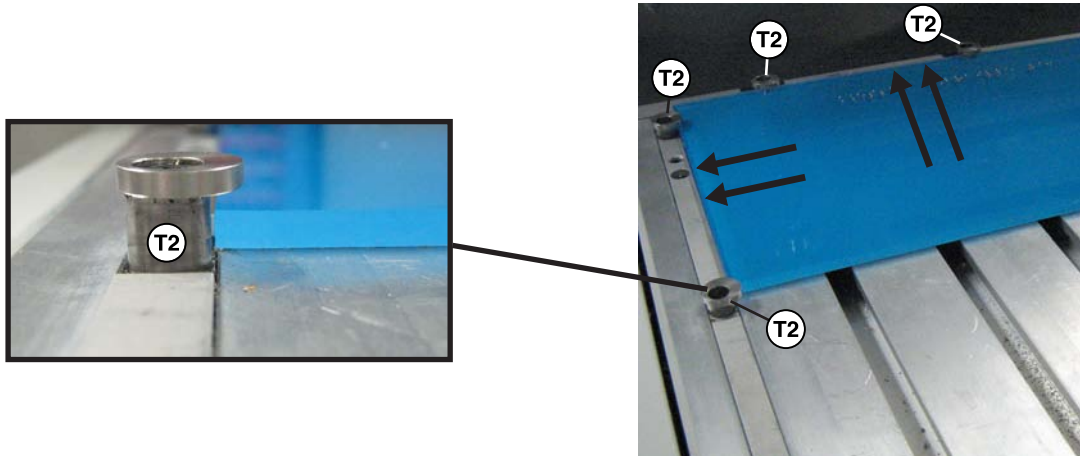
Check that the object is tightened correctly to ensure that it is not ejected during engraving.

Clamping a new plate with the same thickness :

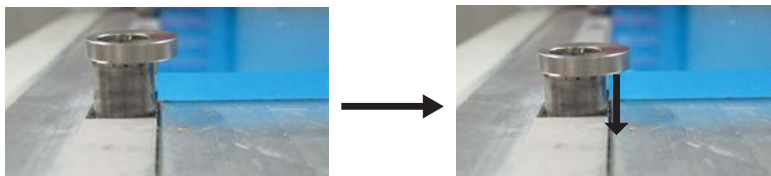
3. Lift up the handle (T1) on the table to remove the previous plate.



4. Place the plate against the clamps (T2) (plate in the top left-hand corner).



5. Lower the handle (T1) ((clamping position) on the table.



6. Also use the clamps (F1) delivered with the machine.

If the plate is correctly tightened, noise and vibrations are reduced to a minimum when the machine is engraving.



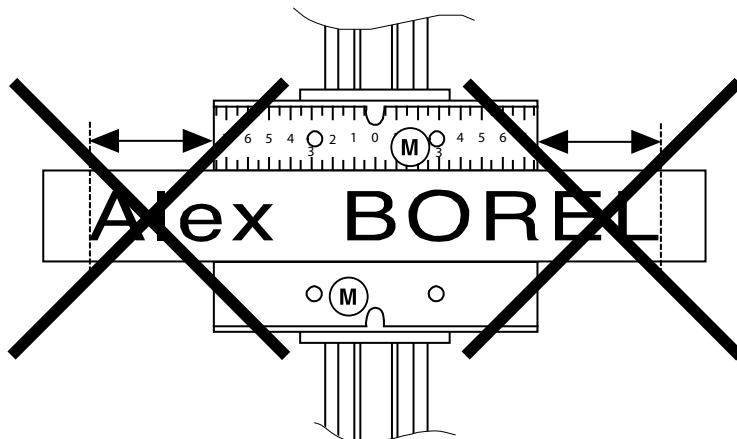
Check that the object is tightened correctly to ensure that it is not ejected during engraving.



Positioning the plate onto the vice (option)

3. Choose the jigs (M) according to the length of the plate (consult your GRAVOGRAPH dealer for more information on the various jigs available).

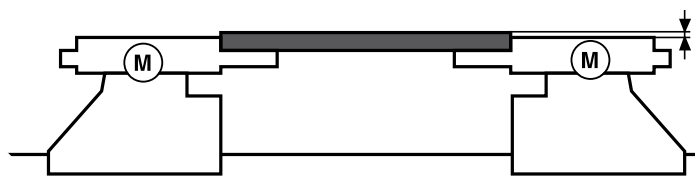
The length of the plate should not exceed the length of the jigs :



See "Clamping the object to be engraved" in the "Physical configuration of the machine" paragraph of chapter "Engraving techniques" in the user manual "CN 97 Program".

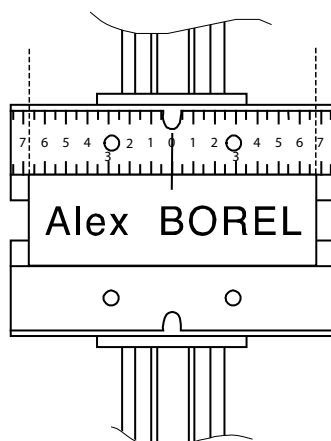
4. Choose adequate side of the jigs (M) according to the thickness of the plate.

The plate should be slightly higher than the jigs to avoid that the regulating nose touches the jigs :



5. Mark the middle of the plate ((not necessary if you use the "Point of shoot (PnS)" function).

6a. Centre the plate so that the centre mark is lined up with the 0 on the jig (origin centre) :



6b. Using the tightening knob, tighten the plate so that it cannot move during engraving.

If the plate is correctly tightened, noise and vibrations are reduced to a minimum when the machine is engraving.



Check that the object is tightened correctly to ensure that it is not ejected during engraving.

Point and Shoot

This GravoStyle function permits to define the engraving area on the plate with the machine.

7a. Click on "Point and Shoot" in Gravostyle

This message is displayed on the LCD-screen of the control panel of the IS900 IQ+ machine:

< JOYSTICK >
X=xxx.xx | Y = xxx.xx

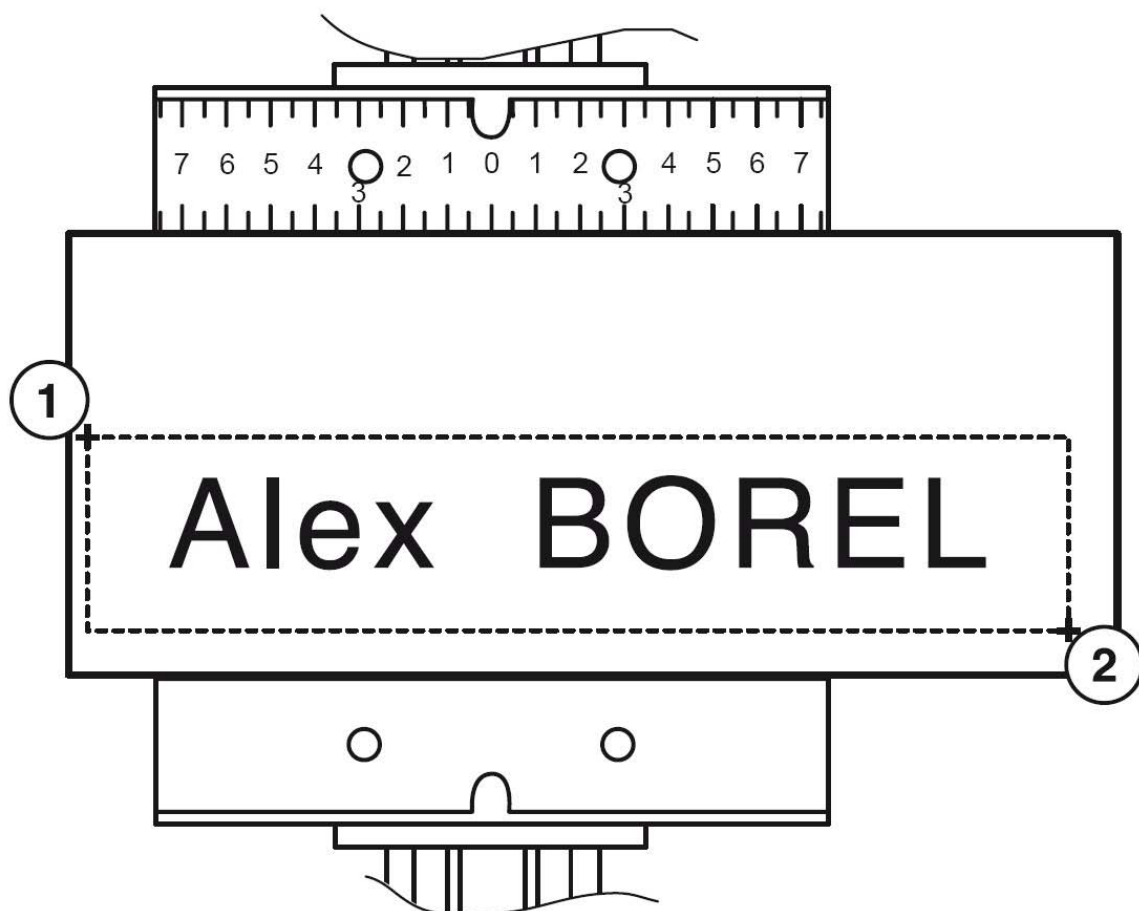
7b. Move the spindle to the first corner (1) of the area to engrave by using the joystick



7c. Validate



< JOYSTICK >
X=xxx.xx | Y = xxx.xx



7d. Move the spindle to the opposite corner (2) of the area to engrave by using the joystick



7e. Validate

This message is displayed on the LCD-screen :

<READY TO RECEIVE>

8. From your engraving software, transfer the composition to the IS900 IQ⁺ machine.

The engraving machine displays the number of bytes received :

To engrave
XXXX bytes received

The following message is displayed for a few seconds as soon as the transfer is complete :

TRANSFER COMPLETED

Then the following message is displayed :

< READY TO RECEIVE >
to engrave

The machine is ready to engrave.

Activation of the RDF function

< READY TO RECEIVE >
to engrave

8b. Press



APF MENU
to select

8c. To reach the RDF menu, press  **as many times as necessary**

RDF MENU
to select

8d. To validate your choice press



RDF SYSTEM NO
to select

8e. To activate the RDF function, select "YES" using the 2 keys



and



RDF SYSTEM YES
to select

8f. Press



< READY TO RECEIVE >
to engrave

The **RDF** function (Profile Following) is activated. During the engraving of plates which are not plane, this function calculates and adjusts automatically the position of the tool holder.



For the engraving with a cutter, you must use a depth regulating swivel nose. The adjustment knob (J4) of the spindle pressure should not be on the position (6). The maximum defect of flatness of the plate corresponds to a slope of 15° max..

Adjusting the spindle

9. Press the  key and the  key straight after.

The tool holder stops above the material to be engraved exactly where the engraving should start.

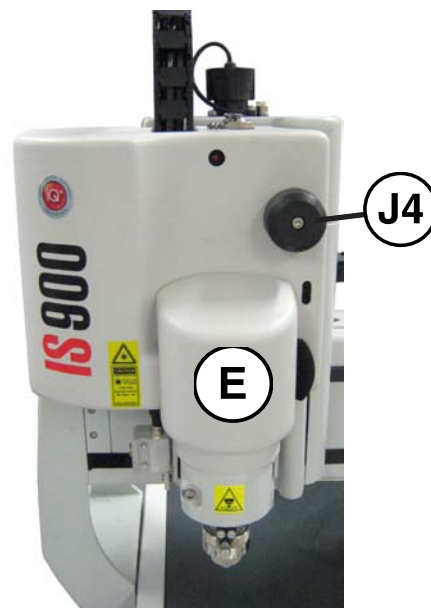
Adjusting the spindle pressure

10. Set the spindle pressure with the knob (J4) on the position (2). Adjust if necessary. (Position (6) = Rigid spindle and position (1) = Supple spindle).

Press the knob (J4) in order to turn it. As soon as the desired position is reached pull it slightly.



In RDF mode, the knob (J4) should not be on the position (6).

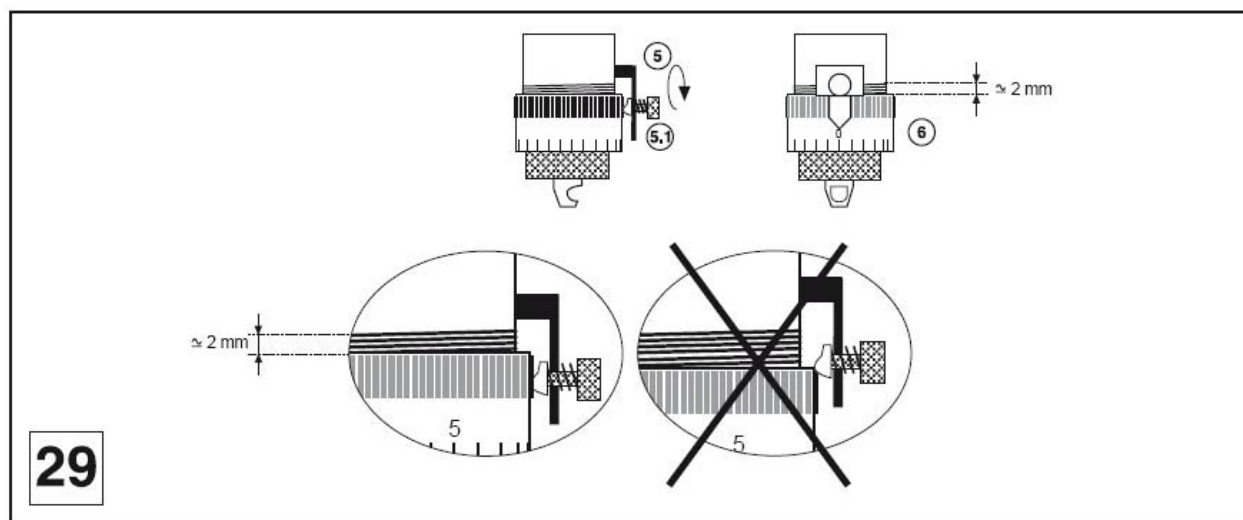


11. Set the regulating nose (4) in place on the spindle and tighten the nose nut.



12. Unscrew the index finger (5) then unscrew the scaled knob (5.1) (diagram 29).

Line up the 0 of the scaled knob with the index finger (6). The scaled knob should be unscrewed in such a way that the index finger blocks it.



Putting the cutter into the spindle

This plate will be engraved using a conical tool (**J1**) (or conical cutter) made of high speed steel with a 4.36 mm diameter and a 0.50 tip.

13. Lower the spindle until the depth regulating nose touches the material to be engraved.

Press



**ZREF = 0.00 mm
to change**

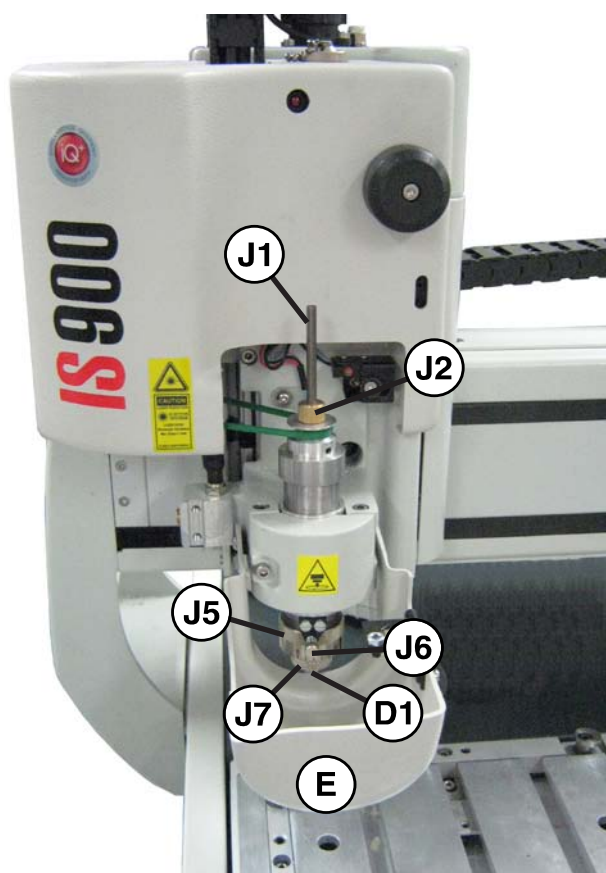
To lower press



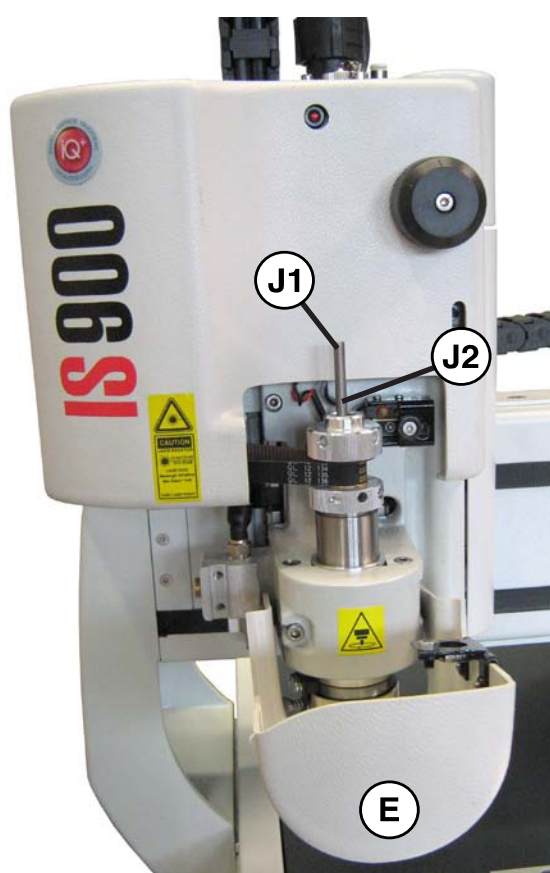
14. Open the belt housing of the tool-holder (E).



As long as the protective housing (E) of the machine is opened, the machine remains in pause. Do not never bypass this safety.



90W standard spindle



200W optional spindle

15. Screw knob of cutter (J2) onto the spindle (diagram 32).

The spindle knob should be tightened anti-clockwise (knob with left-hand thread).



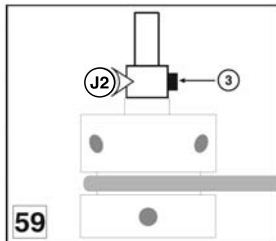
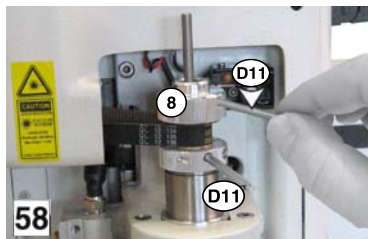
The tool is very sharp and to avoid any risks of getting cut, you are advised to use some kind of protection (gloves) to handle it.

- 16. Insert the cutter into the button until it is touching slightly (carbide cutters are not very shock resistant) the engraving material. To facilitate the insertion of the cutter, slightly unscrew the screw (3) located on the spindle knob (diagram 34).**

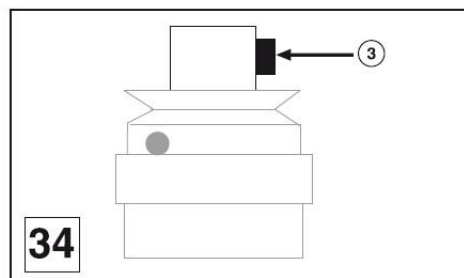
Remember to program 0.5 to 1 mm depth to compensate possible flatness faults of the plate.

200W optional spindle

Screw (anti-clockwise) the tightening knob (8) as much as possible so that the cutter is held correctly in the collet (diagram 58). Use the 2 tightening rods (D11) .



90W standard spindle



- 17. Tighten the screw (3) of the cutter button to lock it into place.**



For greater convenience, we advise that you have as many cutter knobs as you have cutters, so you can leave them together and keep the settings for possible jobs to be carried out in the same conditions in the future (same thickness of materials). For this, you will need to request "the machine configuration save with ZREF" (see "Saving the machine configuration" paragraph of chapter "Basic techniques" in the user manual "CN97 Program").

- 18. Close the protective housing (E) of the machine.**



To avoid any risks of getting burnt, the protective housing (E) of the tool-holder must be always closed, except when carrying out adjustments (if not the machine remains in pause).

Setting-up the spindle origin

- 19. Save the position of the spindle by pressing**

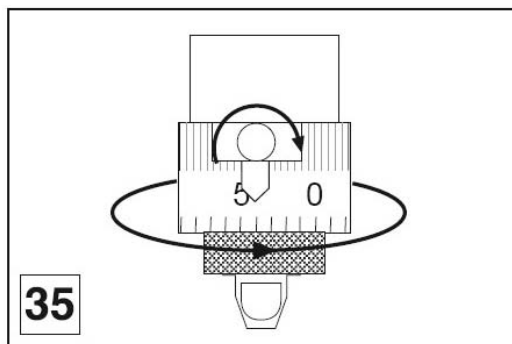


The spindle moves up.

Adjusting the tool depth

- 20. Turn the index finger a few notches to the right to obtain the desired engraving depth (one notch = 0.025 mm) (diagram 35).**

Refer to the table opposite for the number of marks to move the index finger depending on the desired depth and the material used.



Engraving material	Type of cutter	Engraving depth (mm)	Number of marks
Gravoxal	Carbide	0,1	4
Silver	Carbide	0,2	8
Chrome	Diamond	0,025	1
Gravometal	Carbide	0,1	4
Gravoply II	Carbide	0,1	4
Stainless Steel	Diamond	0,1	4
Brass	Carbide	0,3	12
Metallex	Carbide	0,1	4
Gold	Carbide	0,2	8
Plastic	Carbide	0,35	14

- 21. Tighten the index finger in order to maintain the scaled knob in this position.**

Adjusting the rotation speed of the spindle

22. Turn the button (M) on the control panel to the speed required :
- From 10000 to 20000 rpm. for the standard spindle (white graduations).
 - From 5000 to 60000 rpm. for the option HF spindle (orange graduations).



If you wish the spindle to remain without rotation press

Z



Launching the engraving



This sign shown on the spindle of the machine shows the danger caused by the rotating spindle during engraving (risks of getting burnt or cut).
To avoid any risks of getting burnt, the protective housing (E) of the tool-holder must be always closed except for when adjusting the tool-holder and changing the spindle belt (if not the machine remains in pause).
For your own personal safety and to avoid any risks of being crushed by the machine during engraving, do not stand near the tools or lean over the spindle holder (the travel area of the tool is 660 x 460mm).
Always wear protective glasses against chip ejection.



Before starting the engraving, ensure :

- that the object is tightened correctly.
- that the spindle travel area is completely clear.
- that no one is in the travelling area of the moving parts of the machine.
- that no object will obstruct the travelling of the moving parts.



Start the engraving from the IS900 IQ+ machine control panel.



23. Press the START Key (Engraving Start)

The tool holder will move, **at protected speed (slow)**, to the first point in the engraving exactly where the engraving should start.



To obtain a faster displacement, maintain the START key pressed until at the first point of engraving. Warning - Ensure that no one is in the travelling area of the moving parts of the machine and that no object will obstruct the travelling of the moving parts.



In the event of a problem, press the PAUSE key

The machine will momentarily pause.



To continue with the rest of the engraving, press the START key



To stop engraving completely, press one of the arrows on the joystick (arrow keys).



To increase the travel speed of the spindle during engraving, press the arrow key



To reduce the travel speed of the spindle during engraving, press the arrow key



General maintenance



Before carrying out any maintenance, unplug the mains supply cable (label **E2**).

No internal part of the Gravograph machine requires user intervention : general maintenance is limited to external cleaning. If necessary, the user can change the belt or fuses.

If you wish to have the inside of your machine cleaned, contact a Gravograph technician.



The mains cable should always be replaced if it is damaged in any way : flattened, nicked, cracked etc..., or if there are bare wires.

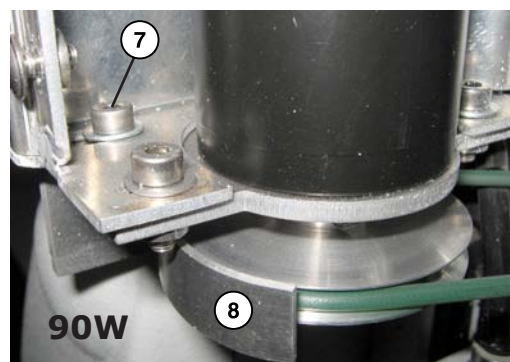
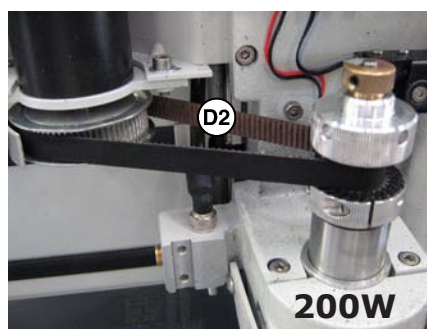
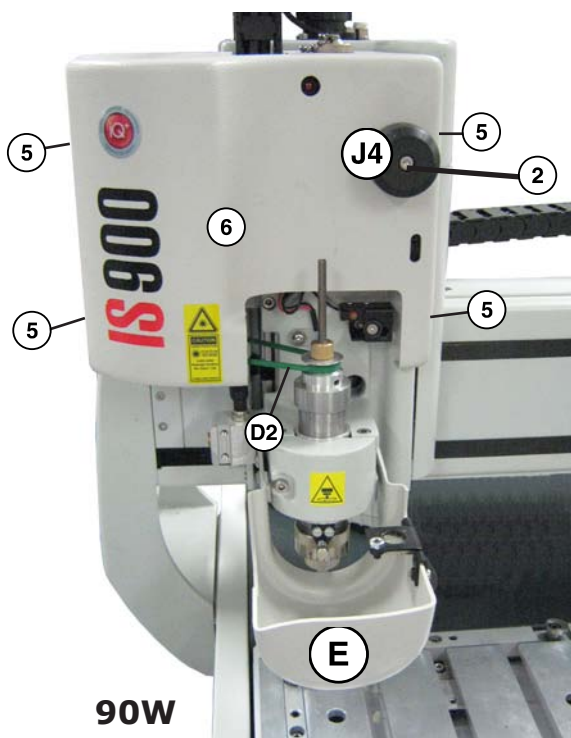
Changing the belt

You will find a spare belt (D2) in the machine tool box : a round and green belt for 90W spindle motor or a notch belt for 200W spindle motor.

1. Open the protective housing (E) of the tool-holder.
2. Unscrew the screw (2) of the adjustment knob (J4) of the spindle pressure and take the knob.
3. Unscrew the 4 screws (5) and take the housing (6) off.
4. Loosen the screw (7) and move away the casing (8) from the belt.
5. Pull the belt off with one hand (D2) upwards, and turn the motor pulley with the other.
6. Put the belt (D2) in the spindle pulley groove.
7. Put the belt (D2) into the pulley groove opening with one hand and turn the pulley with the other.
8. Replace the casing (8) and tighten the screw (7).
9. Replace the housing (6) and tighten the 4 screws (5).
10. Replace the adjustment knob (J4) and tighten the screw (2)
11. Close the protective housing (E) of the tool-holder.



To avoid any risks of getting burnt, the protective housing (E) of the tool-holder must be always closed, except when carrying out adjustments (if not the machine remains in pause).



Changing the fuses

Engraving table

You will find spare fuses in the machine tool box.

The machine IS900 IQ⁺ is supplied with 1 pair of fuses **10 A (T*) 250 V**.



(T*) = These fuses must be temporized, with a high breaking capacity and must comply with the IEC 127-2 norm.



Unplug your machine cable from the mains.

1. **Disconnect the mains cable from the socket at the back of the engraving table to give easier access.**
2. **Press the tag (A) to pull out the drawer containing the fuses.**



10 A (T*) 250 V

3. **Replace the fuse(s) and close the drawer again.**



If the new fuse blows without apparent reason, contact an approved GRAVOGRAPH technician.

Presence of the 200W spindle option - electronics IS box

You will find spare fuses in the machine tool box.

The machine IS900 IQ+ (with the 200W spindle option) is supplied with 1 pair of fuses **4 A (T*) 250 V**.

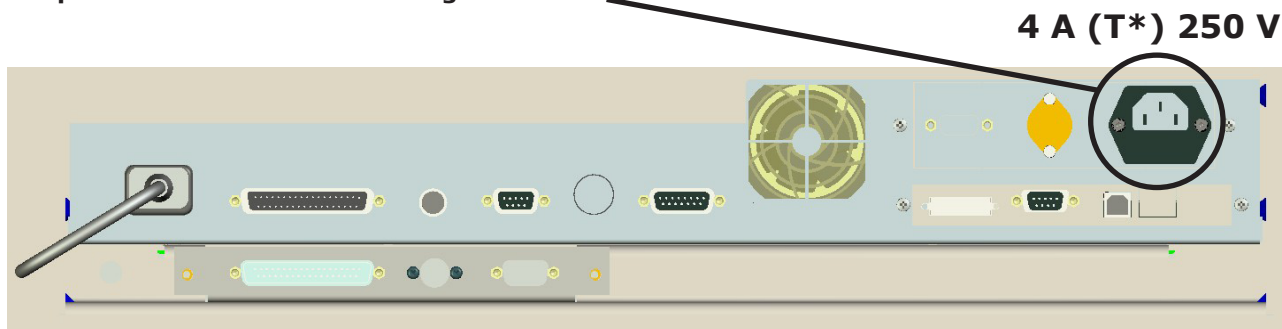


(T*) = These fuses must be temporized, with a high breaking capacity and must comply with the IEC 127-2 norm.



Unplug your machine cable from the mains.

1. **Disconnect the mains cable from the socket at the back of the engraving table to give easier access.**
2. **pull out the drawer containing the fuses.**



3. **Replace the fuse(s) and close the drawer again.**



If the new fuse blows without apparent reason, contact an approved GRAVOGRAPH technician.

Adjusting the machine

After it has been used for some while the reference points ("0" points) of the **IS900 IQ** machine can alter slightly (the centre of the engraving area of the machine is slightly out of line with the clamping system, the Z position at the mechanical stop is above or below its normal position).

The **IS900 IQ** machine has a very simple adjustment system which can be carried out by the user (which enables the machine to be adjusted without having to return it to the distributor).

If you notice that it is out of line in relation to your engraving measurements, adjust the machine.

The **IS900 IQ** machine have 2 reference points :

- The reference point "left corner", Oc(Xc,Yc) is the reference for engraving with the clamping table.
- The reference point "red pointer", Op(Xp,Yp) is the reference for the red pointer.

To adjust the IS900 IQ machine with a clamping table in X,Y

1. Switch on the IS machine.

<< GRAVOGRAPH >>
VERSION XX.XX

2. When this message is displayed press

SPINDLE ORIG. ADJUST
to confirm

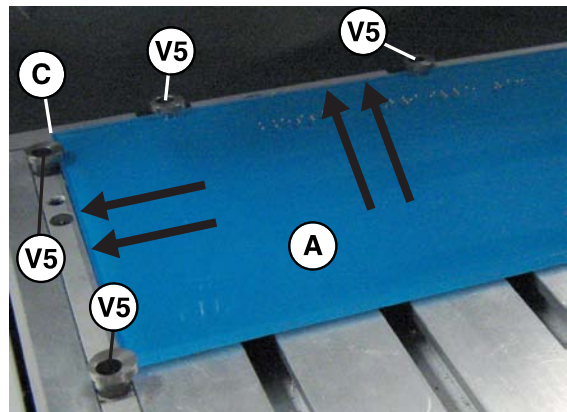


3. Place the plate (A) in the top left-hand corner(C).

The plate should be level with the top of the T-slot table and against the clamp (V5) using as end stop.

4. Take off the cutter, the cutter knob and the depth-regulating nose that may be fitted on the spindle.

5. Validate



The spindle returns to the reference point "left corner", coordinates Oc(Xc,Yc).

The following Oc(Xc,Yc) menu comes up:

JOYSTICK XY
X=x.xx Y=y.yy

6. Press

JOYSTICK Z
Z=1.00



7. Drop the tool-holder 1 centimetre from the top left-hand corner of the plate



8. Press

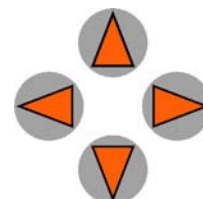
JOYSTICK XY
X=x.xx Y=y.yy



9. From the top of the spindle with the cutter knob off, look through the cutter passage. The left hand corner of the plate should be placed in the centre of the hole.

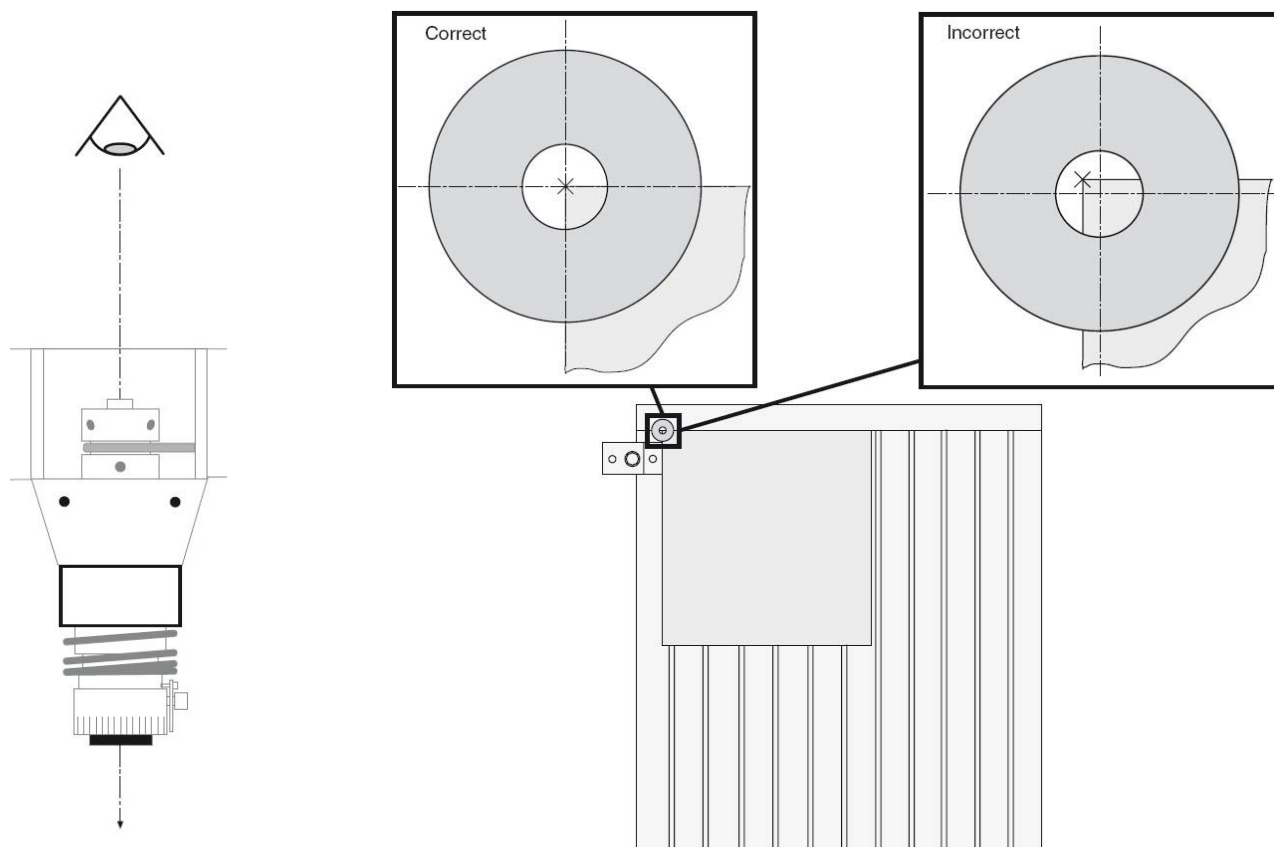


You can also check with the end of a tool mounted on the spindle. In this case the end of the tool must be located precisely at the left corner of the plate.



10. If it does not, adjust the position of the tool-holder using the joystick

11. Repeat steps 9 and 10 until the correct setting is achieved.



12. Once it is correctly adjusted, save the position of the reference point "left corner" $O_c(X_c, Y_c)$ in

X,Y pressing the  key until it shortly beeps.

The adjustment of the reference point "left corner" $O_c(X_c, Y_c)$ in X,Y is finished.

The spindle moves towards the reference point "red pointer", coordinates $O_p(X_p, Y_p)$:

JOYSTICK	XY
X=x.xx	Y=y.yy

13. The red pointer must indicate exactly the left corner of the plate.

14. If it does not, adjust the position of the tool-holder using the joystick.

15. Repeat steps 14 and 15 until the correct setting is achieved.

16. Once it is correctly adjusted, save the position of the reference point "red pointer" $O_p(X_p, Y_p)$

in X,Y by pressing the  until it shortly beeps.

The adjustment of the reference point "red pointer" $O_p(X_p, Y_p)$ in X,Y is finished.

The adjustment of the reference points "left corner" $O_c(X_c, Y_c)$ and "red pointer" $O_p(X_p, Y_p)$, in X,Y, is finished.

To adjust the IS900 IQ machine with a clamping table in Z

REGLAGE Z
to confirm

17. Place the depth regulating nose on the spindle.

18. Press

The tool-holder moves towards the centre of the clamping table.

The spindle lowers until the depth regulating nose touches the plate

JOYSTICK Z
Z=z.zz

19. The regulating nose must be tangent with the plate (contact without pressure)

20. If it does not, adjust the Z position of the spindle, using the 2 keys



and

21. Repeat steps 19 and 20 until the correct setting is achieved.

22. Once it is correctly adjusted, save the Z position of the spindle, pressing the  key until it shortly beeps.

The adjustment of the Z position of the spindle, is finished.

The spindle moves towards the reference point "left corner", coordinates Op(Xp,Yp).

to program a protected displacement

By default, as soon as you press the START key (Engraving Start), the tool holder will move, **at protected speed (slow)**, to the first point in the engraving exactly where the engraving should start. It is possible to program a not protected displacement by default :

PROTECTED DISPLACEMENT
to confirm

23. Press

PROT. DISPLACEMENT YES
to select

24. Select one of the 2 choices (Yes or No) using the 2 keys



and



For your safety we recommend to you to choose the protected displacement. Because it is possible for you to obtain a faster displacement by maintaining key START pressed until at the first point of engraving.

If you want to choose "NO" press the  key until it shortly beeps.



Warning - Ensure that no one is in the travelling area of the moving parts of the machine and that no object will obstruct the travelling of the moving parts.

If you want to choose "YES" press the  key.

The start menu (A) appears :

<< GRAVOGRAPH >>
VERSION XX.XX

Technical Characteristics

Vers 0.0 - 30/03/2009

Physical characteristics

	IS900 IQ+ machine
Overall size (w x d x h)	1012 x 825 x 603 mm 39.8 x 32.5 x 23.7 in
Net weight (without accessories)	90 kg - 40.8 lb
Package size (w x d x h)	1210 x 982 x 855 mm 47.64 x 38.66 x 33.66 in
Shipping weight	140 kg - 63.5 lb

Engraving displacement speed and acceleration

	IS900 IQ+ machine
Max. engraving area	432 x 635 mm 17 x 25 in
Maxi. table surface	460 x 660 mm 18.1 x 26 in
Bridge clearance	80 mm - 3.15 in
According to the X axis: Max. passage in X Max. passage in Y Max. thickness	Unlimited 635 mm - 25 in 20 mm - 0.79 in
According to the Y axis: Max. passage in X Max. passage in Y	510 mm - 20.1 in Unlimited
Z spindel travel	80 mm - 3.15 in
Max. clearance of the tool-holder (without RDF)	4 mm - 0.16 in
Spindle pressure adjusting	Yes - 6 positions
Red pointer	Yes - LASER diode
RDF function (Surface following)	Yes
Max. defect of flatness of the plate with RDF	Slope of 15° max.
Clamping table	Yes
Max. thickness of fastening	10 mm - 0.4 in
Red pointer	LASER diode
X,Y max. engraving precision	0,05 mm - 0.002 in
Engraving repeatability	< 0,05 mm - 0.002 in

Engraving characteristics

	IS900 IQ+ machine	
	X,Y	Z
Max. spindle displacement speed - engraving -	Until 35 mm/s - 1.38 in/s	Until 40 mm/s - 1.59 in/s
Max. spindle displacement speed - diamond engraving -	Until 60 mm/s - 2.36 in/s	Until 100 mm/s - 3.94 in/s
Max. spindle displacement speed - off-load -	Until 100 mm/s - 3.94 in/s	Until 100 mm/s - 3.94 in/s
Max. spindle displacement acceleration - engraving and diamond engraving -	Until 700 mm/s ² - 27.56 in/s ²	Until 1000 mm/s ² - 39.37 in/s ²
Max. spindle displacement acceleration - off-load -	Until 1000 mm/s ² - 39.37 in/s ²	Until 1000 mm/s ² - 39.37 in/s ²

Spindle and spindle motor

IS900 IQ+ machine	90W	200W	150W - HF
Type of motor	Brush DC	Brush DC	Brushless DC
Type of drive	Round belt (Ø3mm)	Notched belt	Direct
Output	42 W nominal	110 W nominal (150 W peak)	150 W
Max. rotation spindle speed	10000-20000 rpm	10000-20000 rpm	5000-60000 rpm
Type of spindle	Standard	Standard with collet	with collet
Type of nose			
Acceptable tools	Ø4,36mm cutters and TwinCut		Ø2 - Ø3 - Ø3,17 - Ø4 mm

Sound signal according to standard ISO 11201

IS900 IQ+ machine		90W	200W	150W - HF
Waiting for engraving	LAeq dB (A)	< 72 ± 1	75 ± 1	38 ± 1
Nominal engraving	LAeq dB (A)	80 ± 2	83 ± 2	89 ± 2

Environment

Operational temperature	min. +5 °C ; + 41°F - max. +40°C ; + 104°F
Storage temperature	min. -5 °C ; + 23°F - max. +45 °C ; + 113°F
Degree of relative moisture when in use	5 to 85 %

Point & shoot

	IS900 IQ+ machine
Kind	LASER diode
Wavelength	630 - 680 nm
Max. output / Class	1 mW / Class 2

Electrical and pneumatical characteristics

IS900 IQ+ machine	Power supply (V)	Max. absorbed current (A)	Frequency (Hz)	Absorbed power (W)	Type of protection			Air (bar)	Insulation - Type of service	Electromagnetic compatibility	
					Machine fuses	MEPB fuses	Fuses of the optional rack			Emission	Immunity
90W	Input : AC 100 - 240 V	3.5 - 1.75	50 - 60	300	2 x 10 A T	2 x 4 A T	-----	-----	Classe I - S1	Norm EN 55022 classe B ----- Norms EN 61000-3-2 EN 61000-3-3	Norm EN 61000-6-2 (industrial environment)
200W		5 - 2.5		500			-----	-----			
150W-HF	Input : AC 100 - 120 V / 200 - 240 V						2 x 4 A T	0.5 - 0.8			

Connections - control panel - Links

IS900 IQ+ machine	90W & 200W	150W - HF
USB	1.1	
Parallel	26 - pin Mini - Delta Ribbon	
Standard Inputs/Outputs	SubD 15 pins	
Smart Spindle (Option)	Binder KfV - 12 pins (on the tool-holder of the machine)	
Lubrication (Option)	Through the connections plate - Tube PU 4x6 + 1.5x2.5	
200W rack (Option)	SubD9 <=> DIN8 + SubD9 <=> SubD9	-----
Air inlet (air seal)	-----	Through the connections plate - Tube PU 2x4
150W rack	-----	SubD9 <=> DIN8 + FCI_CLIP9 <=> SubD9
Spindle	-----	FCI_CLIP9

Engraving softwares characteristics

	PC Engraving software
Engraving software	GravoStyle 5 (version >__)
Operating system (for the engraving software)	Windows XP ; Windows Vista
Languages	Fre, Eng, Ger, Ita, Spa, Nld
File formats	Gravograph binary

Optional accessories

Vice

	IS900 IQ+ Vice
Dimensions	x mm x in
Net weight	kg - lb
Vice type	Removable, Manual, self centering
Jigs type	Plastic
Max. opening vice	230 mm - 9.05 in
Z max. clearance (jigs - spindle)	60 mm - 2.36 in

Appendices

Gravograph Machines Soft setup



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 MAKE A GRAVOGRAPH ROTARY MACHINE READY TO ENGRAVE.....	2
 MAKE A GRAVOGRAPH LASER MACHINE READY TO ENGRAVE	5
 MAKE A GRAVOGRAPH LASER MACHINE READY TO ENGRAVE WITH LASERSTYLE.....	8
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Gravograph Machines - Soft setup



How to make Gravograph machine ready to engrave

Install physically the machine on workspace, in accordance with Gravograph user manual.



Locate the power button.

- Button on 0: machine powered off, out of order
- Button on 1: machine powered on, ready to engrave



Make a Gravograph rotary machine ready to engrave



Make a Gravograph laser machine ready to engrave



Make a Gravograph laser machine ready to engrave with LaserStyle



Plug onto USB port an additional Gravograph machine



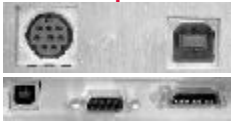
Make a Gravograph laser machine ready to engrave with a graphical editor



Make a Gravograph rotary machine ready to engrave



This operation concerns rotary machines which rear side has these connectors



UC_Sirius

UC_K2000

- A. **Set up GT Smartstream driver onto your computer.**
- B. **Set the softlink between PC and engraving machine.**
Make this connection using a cable you plug the connectors
 - **either machine USB port and PC USB port**
 - **or machine serial port and PC COM port**
- C. **Enable rotary machine in GravoStyle 5 or GravoStyle Quick Click engraving program.**

Setting up GT Smartstream driver

1. Power off your(s) machine(s). Unplug from your PC.
2. Power up PC. Let Windows operating system start 
3. **Run a session as Administrator.**
A standard user has no right to make a setup in Windows.
4. **Have the digital media used to set up your Gravograph engraving program.**
 Explore contents of support iconized as **a driver identified by a letter in Computer (for example F: or H:).**

GravoStyle 5	a. Set GS5 DVD into your PC drive  b. Right-click GS5 DVD  c.  Click Explore command in context menu.
GravoStyle Quick Click	d. Plug GTSoft key onto one USB port of your PC  e. Double-click GTSoft key 

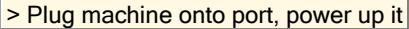
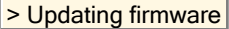
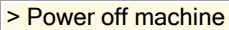
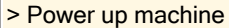
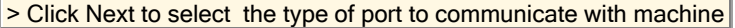
5.  In **.\Driver\GT_Smartstream** folder double-click  **setup.exe** file.
Follow the instructions posted by setup wizard.
6. Click the **port used for the connection between your PC and your machine.**
Click the type of port to communicate with machine

☒ **USB** (is default and recommended)
☐ **Other** for COM port
7. **When the driver and its components have already been set up** on your computer, they are systematically deleted.

> Deleting current driver...
8.  A message notifies that driver is not Windows certified. To carry on setup in

Windows Vista, click "Install driver anyway"
Windows XP, click Continue

Setting softlink between PC and engraving machine

USB connection	1. Plug a single machine onto an USB port of your PC. Power up it.  Plug machine onto port, power up it 2. The setup wizard checks the compatibility between GT Smartstream 3.xx and machine firmware (embedded program that carries out engraving instructions). • When compatibility is ok, the wizard jumps to step 4. • Otherwise the last firmware version will be set up. Machine beeps when operation is over.  Updating firmware 3. Power off your engraving machine, then power up again.  Power off machine  Power up machine 4. The machine is automatically detected as new device on an USB port of your PC.  Click "Software correctly installed" in Software compatibility wizard of Windows Vista.  In Windows XP Add new detected device wizard asks if devices plugged onto your PC should be checked. a.  Click "Not this time."  Click. b. The wizard asks if you expect Windows to set up machine driver.  Click "Install software automatically (recommended)".  Click. c.  A message notifies that driver is not Windows certified.  Click. d.  Click when setup is over. 5. In Start menu or in Control panel double-click Printers: check that your machine is displayed as new GT Smartstream printer  6. Give this printer the name of your engraving machine.
COM connection	1.  Click. Configure your machine as Windows printer in Properties dialog box.  Click Next to select the type of port to communicate with machine 2.  Click tab. 3. Click COM followed by the number of the port where you plugged the cable that links the PC and the engraving machine. 4.  Click tab. 5. Give this printer the name of your engraving machine followed by the selected port (for example COM1: or COM2:). 6.  Click. 7. In Printers check that your machine is displayed as new printer 

Enabling laser machine in your Gravograph engraving program

GravoStyle 5

1.  **Double-click in Start menu to run the program.**
2. Click tab 
3. Open **Machines: click Config. machines command in Engraving menu.**
4.  Click **Add machine.**
5.  Click **your machine type.**
6.  Right-click **your rotary machine exact name.**
7.  Click **Add machine command in context menu.**
8. In Installed printer list **click printer named exactly like your engraving rotary machine.**
9.  Click in **Setup output dialog box.**
10.  Click in **Machine Properties dialog box.**

 Your machine is active in installed printer list.

GravoStyle Quick Click

1.  **Double-click in Start menu to run the program.**
2. Click in Step panel **to display Composition screen**

3. **Click a ruler to display plate parameters.**
4.  Click **your rotary machine exact name.**
5.  When you have several GT Smartstream printers **click the printer named like your machine.**

January 8, 2009 

Make a Gravograph laser machine ready to engrave

- A. Set up Gravograph L-Solution driver onto your computer.
- B. **Set softlink between PC and engraving machine.**
Make this connection using a cable you plug the connectors
 either onto machine USB port and PC USB port
or machine serial or parallel port and PC LPT or COM port
- C. **Make the machine ready to engrave with the program used to produce engraving.**
 - either LaserStyle Gravograph software
 - or a graphical editor like Corel Draw™, AutoCad™ or Adobe Illustrator™

Setting up L-Solution Gravograph driver

1. Power off your(s) machine(s). Unplug from your PC.
2. Power up PC. Let Windows operating system start 
3. **Run a session as Administrator.**
A standard user has no right to make a setup in Windows.
4. Set into your PC drive **the disk used to install the driver.**

GravoStyle 5	 Explore contents of support iconized as a driver identified by a letter in Computer (for example F: or H:).
	
	a. Right-click GS5 DVD b.  Click Explore command in context menu. c.  In .\Driver\LSolutionxx folder double-click  setup.exe file. Follow the instructions posted by setup wizard.
L-Solution	 Double-click L-Solution CD delivered with your machine.

5. Click the **port used for the connection between your PC and your machine.**
Click the type of port used to communicate with machine
☒ **USB** (is default and recommended)
☐ **Other** for COM or LPT port
6. **When the driver and its components have already been set up** on your computer, they are systematically deleted.

> Deleting current driver...

 **When deleting failed, Windows reboots. Restart full setup of L-Solution driver.**

7.  A message notifies that driver is not Windows certified. To carry on setup in

Windows Vista, click "Install driver anyway"
Windows XP, click Continue

Setting softlink between PC and engraving machine

USB connection



1. **Plug a single machine onto an USB port of your PC.** Power up it.
2. The setup wizard checks the **compatibility between L-Solution 5.xx-3 and machine firmware** (embedded program that carries out engraving instructions).
 - When **compatibility is ok, the wizard jumps to step 4.**
 - Otherwise the last firmware version will be set up. Machine beeps when operation is over.
3. Power off your engraving machine, then power up again.
4. **The machine is automatically detected as new device** on an USB port of your PC.
 Click **"Software correctly installed" in Software compatibility wizard of Windows Vista.**
 **In Windows XP Add new detected device wizard** asks if devices plugged onto your PC should be checked.
 - a. Click **"Not this time."**
 Click.
 - b. The wizard asks if you expect Windows to set up machine driver.
 Click **"Install software automatically (recommended)".**
 Click.
 - c. A message notifies that driver is not Windows certified.
 Click.
 - d. Click when setup is over.
5. **In Start menu or in Control panel double-click Printers:** check that your machine is displayed as new L-Solution printer 
6. **Give this printer the name** of your engraving machine.

**LPT or COM
connection**



1. **Next>** Click. Configure your machine as Windows printer in **Properties dialog box**.
> Click Next to select the type of port to communicate with machine
2. **Ports** Click tab.
3. Click the port onto you plugged the cable that links the PC and the engraving machine.
Click LPT or COM, followed by the port number.
4. **General** Click tab.
5. **Give this printer the name** of your engraving machine followed by the selected port (for example LPT1: or COM2:).
6. **OK** Click.
7. **In Printers** check that your machine is displayed as new printer 

January 8, 2009 

Make a Gravograph laser machine ready to engrave with LaserStyle

- A. **Set up Gravograph L-Solution driver onto your computer.**



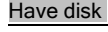
Use GS5 DVD to set up driver.

- B. **Set the softlink between PC and laser machine.**
- C. **Make your laser machine ready to engrave with LaserStyle Gravograph software.**
- **Check the USB port assigned to L-Solution printer you have just added.**
 - **Set up GT Smartstream driver for data exchange between LaserStyle and your laser machine.**
 - **Enable your laser machine in LaserStyle engraving program.**

Checking the USB port assigned to L-Solution printer you have added

1. In Start menu or in Control panel double-click Printers.
2.  Right-click the **printer you have named like your laser machine.**
3.  Click **Properties** in contextmenu.
4.  Click tab.
5.  In Port list, locate **USB port ticked.**

Setting up GT Smartstream driver for Gravograph laser machine

1. **In Start menu double-click Printers.**
2. Click **Add printer command in File menu.**
3. **Add printer wizard opens.**
 Click.
4.  Click **Local printer** ( **Plug & Play box unticked**).
 Click.
5. Click **USB Port assigned to L-Solution printer.**
 Click.
6. Locate **GT Smartstream driver.**
 - a.  Click.
 - b.  Click.
 - c. **Double-click GS5 DVD** 
 - d.  In **.\Driver\GT Smartstream** folder click  **GT_Smartstream.inf** file.
 - e.  Click.

 How to carry on when GT Smartstream 3.xx driver is already set on your computer?

- a.  Click **Gravograph Manufacturer**.
- b. Click **GT Smartstream3.xx. Printers driver**.
- c.  Click.
- d.  Click **Keep existing driver**.
- e.  Click.
- f.  Click.

Enabling laser machine in LaserStyle

1.  Double-click in Start menu to run the program.
2. Click tab .
3. Open **Machines**: click **Config. machines** command in **Engraving** menu.
4.  Click **Add machine**.
5.  Click **your machine type**.
6.  Right-click **your laser machine exact name**.
7.  Click **Add machine** command in context menu.
8. In Installed printer list click **L-Solution** printer named like your laser machine.

9.  Click in **Setup output** dialog box.
10. Set your laser machine properties in **L-Solution Installation** dialog box:
 - a.  Click the **Bridge** that fits your machine.

 - b. Click **ports** available on your machine:

 - c.  Click **Laserpower** (from 30 Watts, see plate at machine rear side).
 - d.  Click (more information in Gravograph manual delivered with laser machine).

11.  Click.
12. In Installed printer list click **GT Smartstream** port named like your laser machine.
13.  Click in **Setup output** dialog box.
14.  Click in **Machine Properties** dialog box.

 Your machine is active in installed printer list.

January 8, 2009 

Plug onto USB port an additional Gravograph machine

Use MajFirmware.exe tool to control and to configure the parameters of the additional machine, before connecting it onto an USB port of your PC.

 To connect onto USB ports several Gravograph machines , your PC must have at least 4 USB ports free.



To connect onto USB ports a rotary machine , then a Gravograph laser machine

- A.  First make rotary machine ready to engrave.
- B.  Then make laser machine ready to engrave with LaserStyle.

Running MajFirmware.exe tool

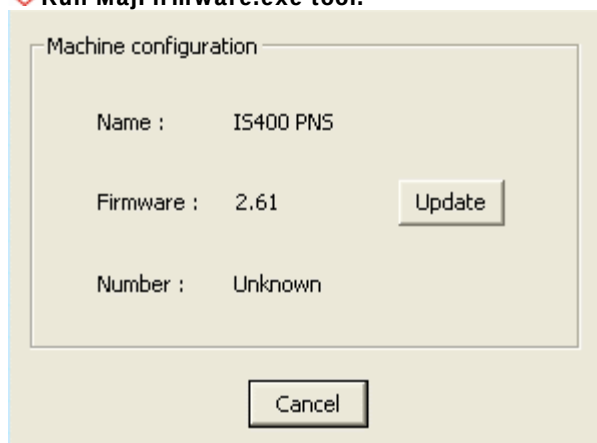
1. Power off first machine. Unplug from PC.
2. **Plug only the additional machine onto an USB port of your PC. Power up it.**
3. Run MajFirmware.exe tool **from the digital media used to set up your Gravograph engraving program:**

GravoStyle 5	a. Right-click GS5 DVD  b.  Click Explore command in contextmenu. c.  In .\Firmware folder double-click  MajFirmware.exe file.
GravoStyle Quick Click	a. Double-click GTSOFT key  b.  In .\Firmware folder double-click  MajFirmware.exe file.

Updating additional machine firmware

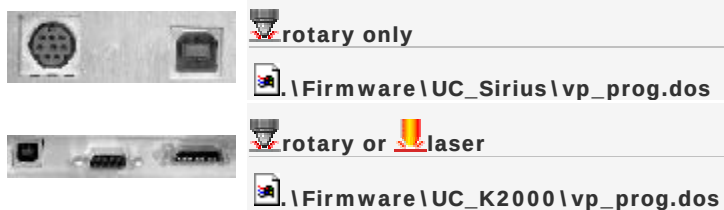
! When the driver that matches the additional machine has been already set up on PC check its compatibility with this machine firmware.

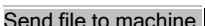
1.  **Run MajFirmware.exe tool.**



2. Check **Number** parameter. When value is
 - **a number:** firmware and driver are compatible.  Close dialog.
 - **"Unknown":** firmware and driver are not compatible. **Update firmware.**

- a.  Click opposite **Firmware** parameter.
- b. **Double-click the file** that will update firmware:



- c.  Click to send the file. Machine beeps when operation is over.
- d.  Click.

Differentiating two same named-machines

The additional machine has the name of a machine formerly set up.

1.  **Run MajFirmware.exe tool.**
2.  Click opposite **Number** parameter: **type a different number for each additional machine.**
0 value remains the number of the first machine set up.
3.  Click.

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Make a Gravograph laser machine ready to engrave with a graphical editor

1. Set up Gravograph L-Solution driver.



To set up driver use L-Solution CD delivered with your machine.

2. Set the softlink between PC and engraving machine.
3. Open a new document in your **usual graphical editor (Corel Draw™, AutoCad™, Adobe Illustrator™, etc.)**.
4. Set objects to engrave (text, vectorial logos, bitmap images).
5. Set each object properties (contour thickness, surface, color).
6.  **Enable Print command.**
7. In Printer Selection, **click the printer named exactly like your engraving laser machine** 
8.  Click.
9. **Configure laser engraving using L-Solution dialog box commands** (more information in Gravograph manual delivered with laser machine).

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