

Best Built

Computerized Engraving System

UT-20 Engraver

Instruction Manual



Flat , curved, inside and outside ring engraving



This manual has been drawn up by BBJE.

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Best Built Jewelry Equipment

42 Andrews Road
Hicksville, NY 11801
516- 868-6045

<http://www.jewelryequipments.blogspot.com/>

Guide to the manual

This manual has been produced to serve as a guide for users of the UT-20.

Read it carefully; it is essential if you wish to operate your machine safely and efficiently

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

- Safety Instructions**
- UT-20 Specifications**
- UT-20 accessories provided**
- UT-20 basic**
- Using Auxiliary Jig**
- Installation**
- Flat surface engraving**
- Engraving images**

Safety Instructions

- **Make sure that all tools and work holding equipment are tight before running the engraving machine.**
- **All maintenance and repair work should be done with the power off. If any work requires power ON, extreme care should be taken.**
- **Keep the machine always clean and keep away the tools from getting damaged.**
- **Avoid direct eye exposure to laser beam when laser pointer is on and never stare into the beam for long time.**



UT-20 Specifications



Power Input	100V ~ 240V
Power Consumption	48W
External Dimension	260mm(W) × 233mm(H) × 325mm(D)
Maximum Engraving Area	123mm(X) x 100mm(Y) x 30mm(Z)
Weight	17.5Kg
Mechanical Resolution	0.005mm (X,Y) 0.00125mm (Z)
Feedrate	1 – 36mm/sec (XY) 1 – 18mm/sec (Z)
Interface	USB (Full compliance with the USB Specification v1.1)
Instructions	HPGL
Operation Temperature	4 - 40 °C
Operation Humidity	30 - 85 %
Accessory	Laser Pointer (Red, Maximum 5mW, 650~670nm Class IIIa Type)
Usage	Engraving on metal surface

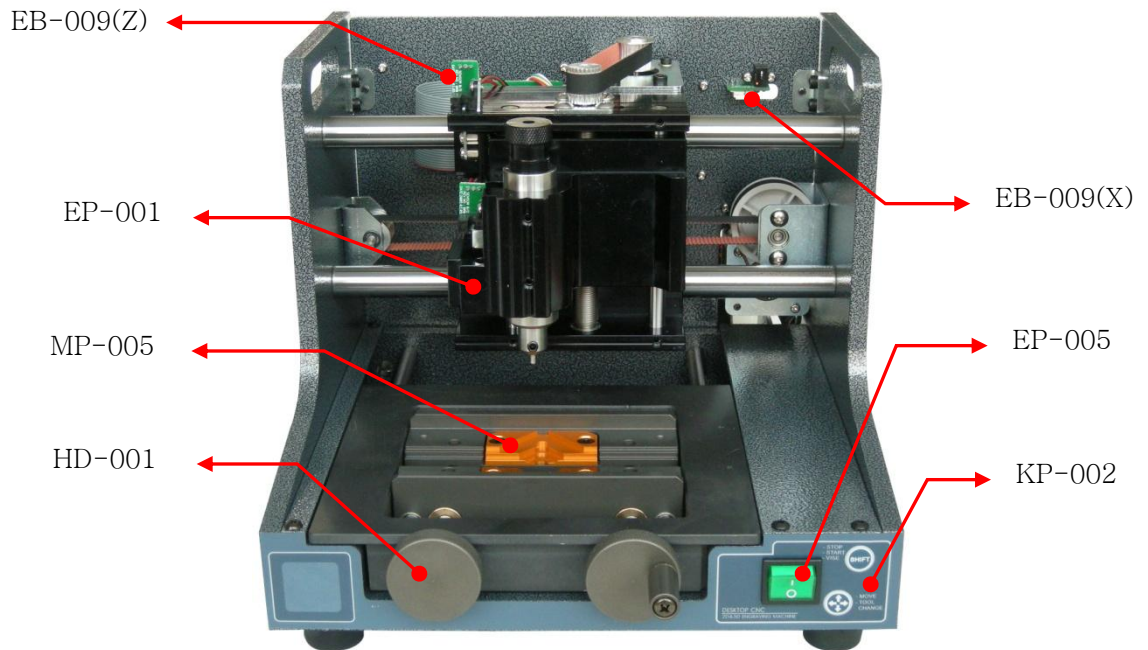
UT-20 Accessories Provided

To ensure trouble-free working with UT-20, it is advisable to always have certain spare parts on hand. UT-20 is supplied with a full range of accessories. The accessories provided are all that is necessary to carry out the operations for which the machine is designed.

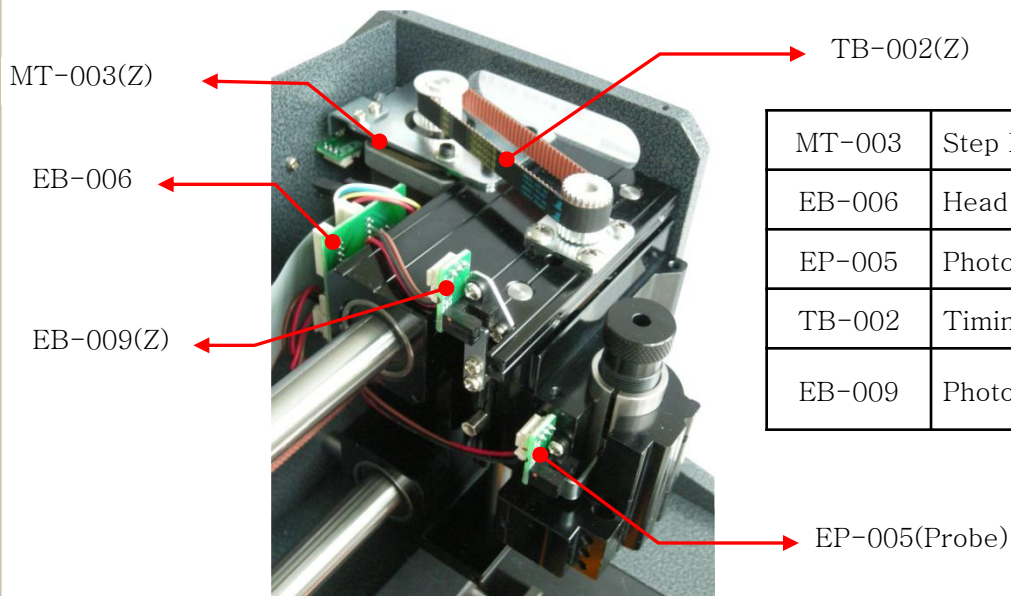
Figure	Name	Code	Qty.	
	Engraving Tool	TL-004	1EA	
	Wrench	WL-002	1EA	2.5mm To exchange tool
	Auxiliary Jig (Optional)	MP-020	1SET	To hold large material
	AC Adapter	EP-010	1 EA	DC24V / 2A 
	USB Cable	EP-007	1 EA	
	S/W CD	OT-024	1 EA	
	Instruction Manual	OT-032	1 EA	

✓ Accessory items are subject to change without notice.

UT-20 Basic: Main Parts

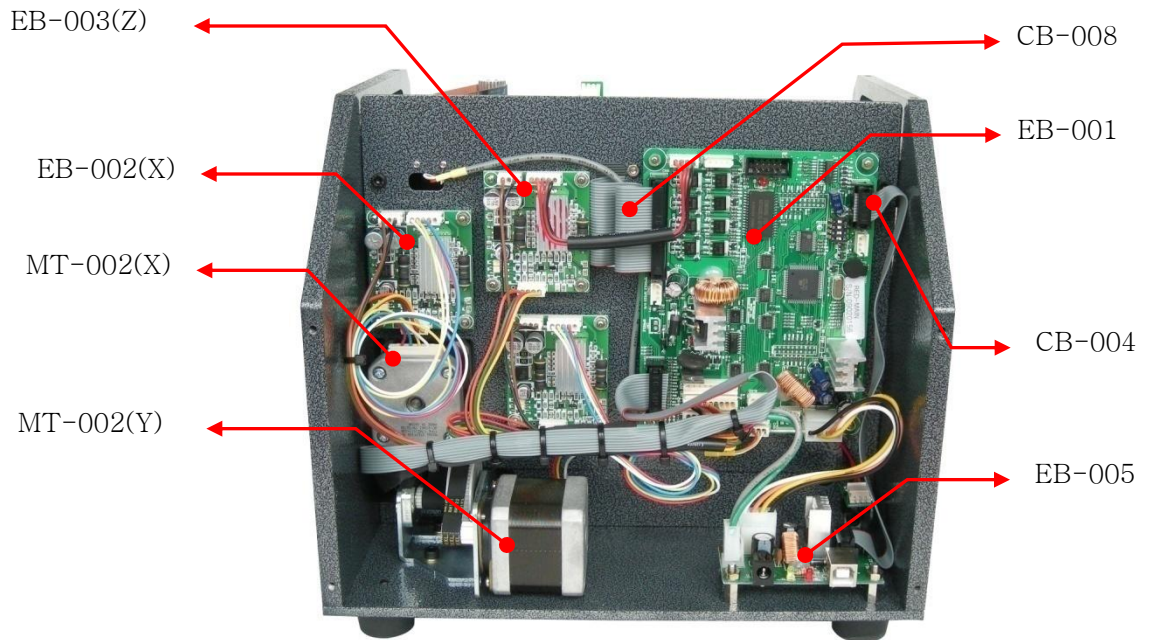


EB-009	Photo Sensor with PCB
EP-001	Laser Pointer
MP-005	Multi Purpose Jaw
HD-001	Vise Handle
EB-009	Photo Sensor with PCB
EP-005	Power Switch
KP-002	key panel



MT-003	Step Motor (Z)
EB-006	Head Board
EP-005	Photo Sensor with PCB
TB-002	Timing Belt (Z)
EB-009	Photo Sensor with PCB

UT-20 Basic: Main Parts





EB-002	Step Motor Driver(X, Y)
EB-003	Step Motor Driver(Z)
MT-002	Step Motor (X,Y)
EB-001	Main Board
CB-008	30P Head Cable
CB-004	10P Flat Cable(USB)
EB-005	Interface Board



UT-20 Basic: Keypad



	STOP (in engraving state)	If the machine is in engraving state, pressing this button will cancel engraving. Stopping the engraving job, it will return to home position.
	START (in positioning state)	If the machine is in engraving area positioning state, press this button for more than 1.5 second to start engraving.
	CLAMP IN/OUT (in standby state)	If the machine is in stand-by state, pressing this button will pull the clamp vise in and out.
	MOVE (in positioning state)	If the machine is in engraving area positioning state, pressing this button will move the engraving position to the left/right/top/bottom in accordance with current position. Laser beam will indicate the state of position.

Using Auxiliary Jig: Attaching the Auxiliary Jig

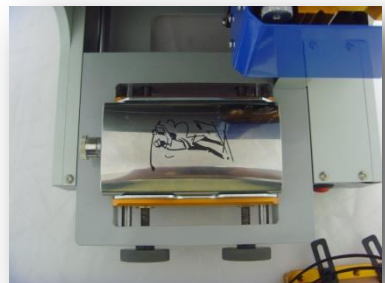
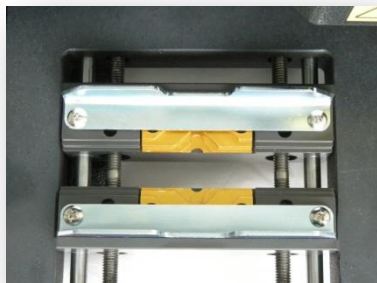
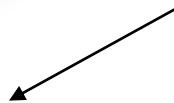
The auxiliary jig is used to hold large or wide shaped objects.

Attach both clamps as a pair.

Use a philips head screw driver to attach the clamps on the vise.



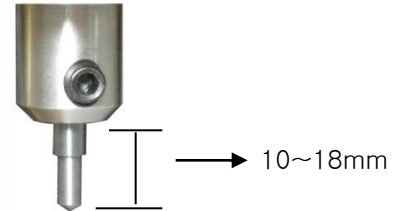
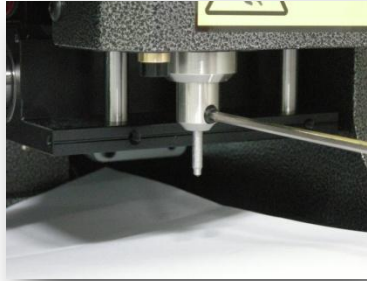
[Auxiliary Jig]



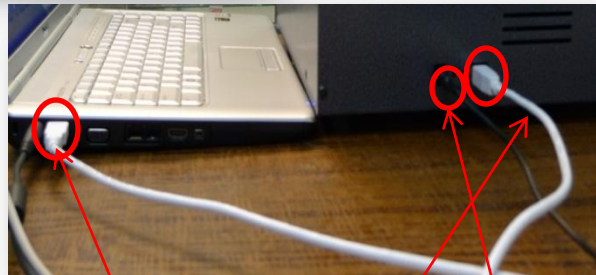
Installation :

Cables and Program

1) Insert the diamond drag tip and use the wrench provided to tighten the tip into position.



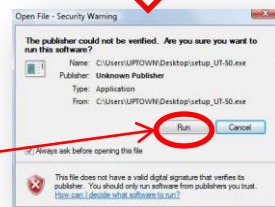
2) The USB cable connection is located behind the engraver and also the power connection. Plug the other end of the USB cable to your PC and the power adapter to your wall outlet. Make sure to use a surge protector in case of electrical surge.



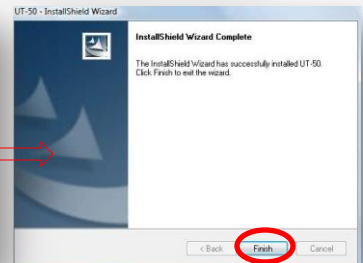
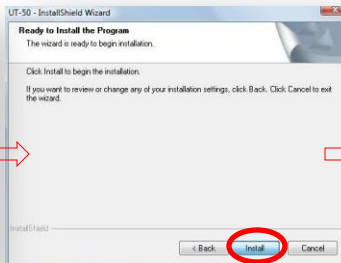
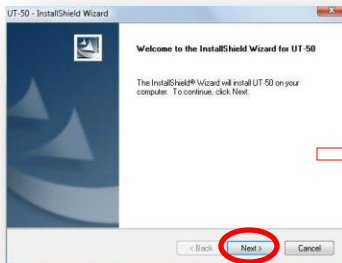
USB Cable (PC to Engraver)

Power Cable

3) Insert the program CD in your disk drive. Installation should start automatically. If it does not, double click on the CD drive icon and look for (SET UP.EXE) file. Double click on the SET UP.EXE and installation setup should begin.

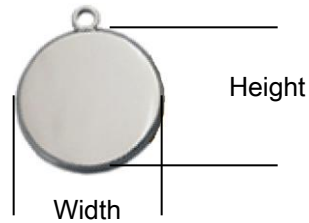


Select Run to proceed to next step.

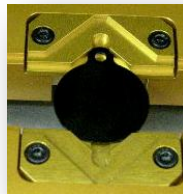


Flat Surface Engraving:

1) Measure the work area of the object being engraved.



2) Place the object on the vise and turn the knob clockwise to tighten.

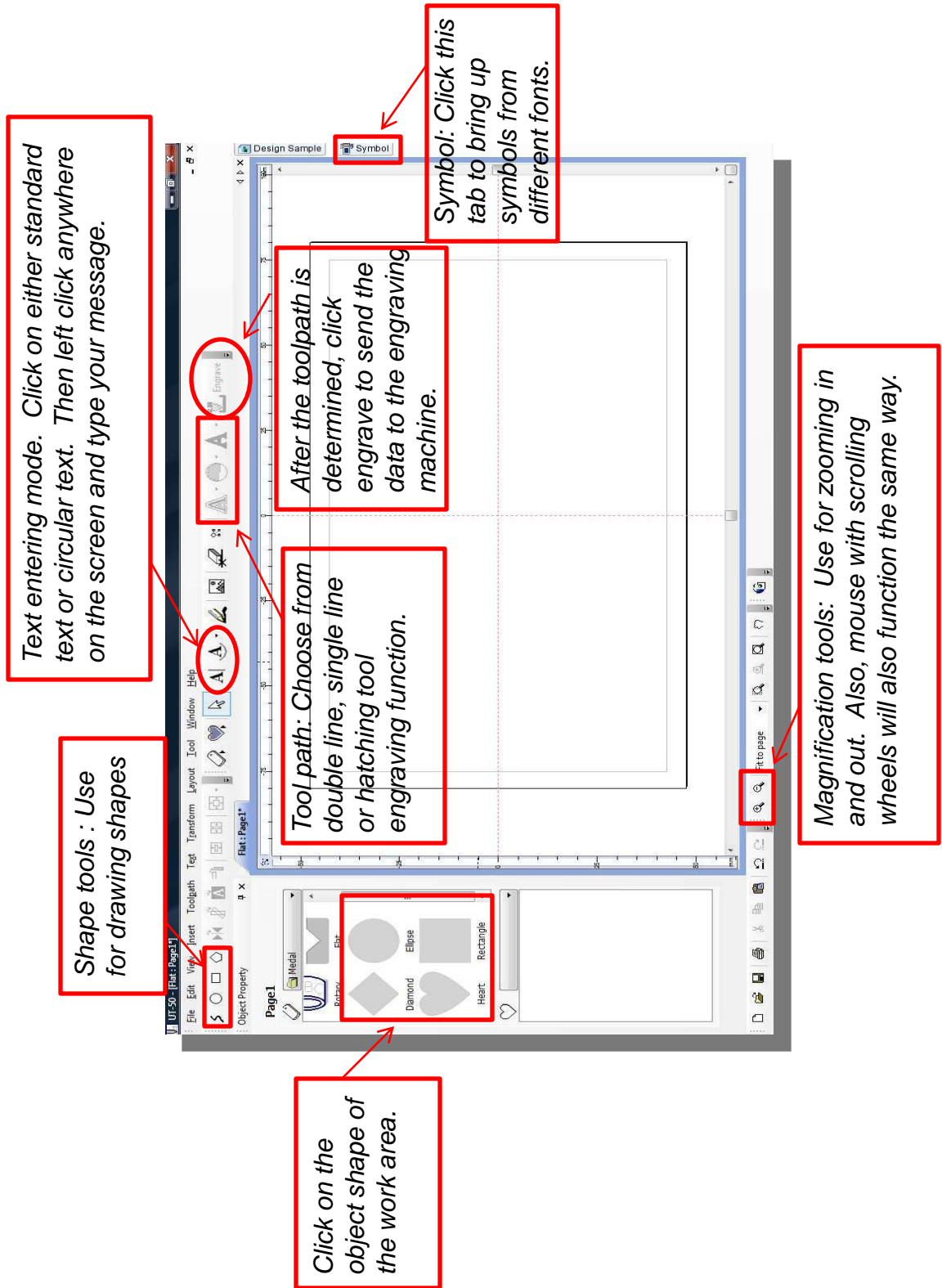


Turn clockwise to tighten

3) Double click on UT-20 engraving icon on your desktop to open up the program.

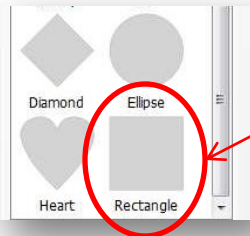


Flat Surface Engraving: Basic layout information

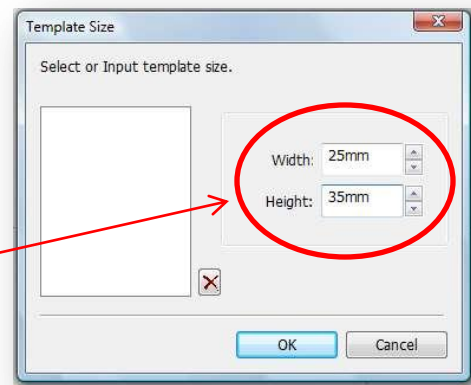


Flat Surface Engraving: Basic layout information

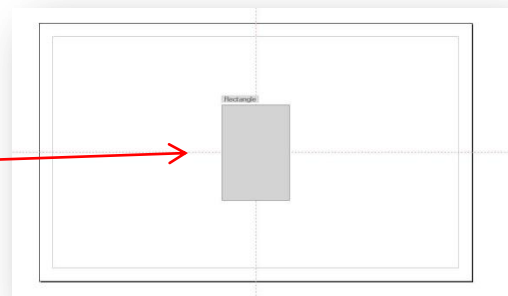
1) Click on the shape best resembling the work area.



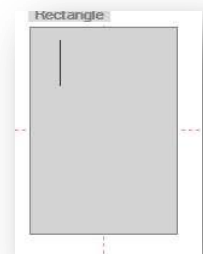
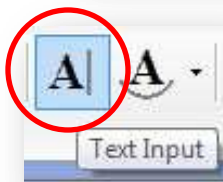
2) Enter the size of the work area in millimeter only.



3) Once the size is entered, the work area will be shown. All text or drawings must be placed within the work area.

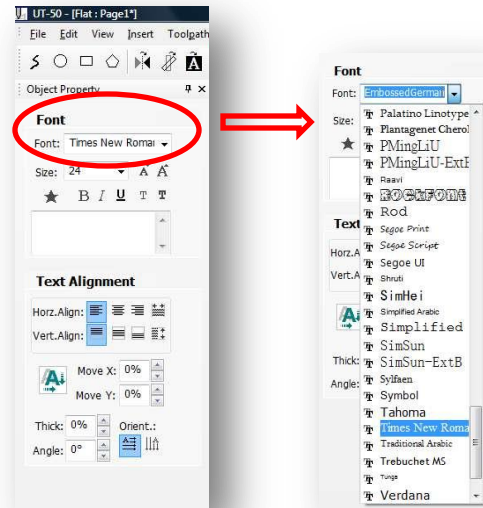


4) Select the text input icon, move the mouse pointer anywhere on the work surface. Then left click and enter your text.

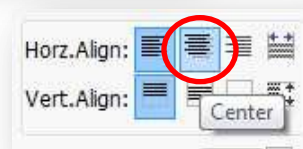
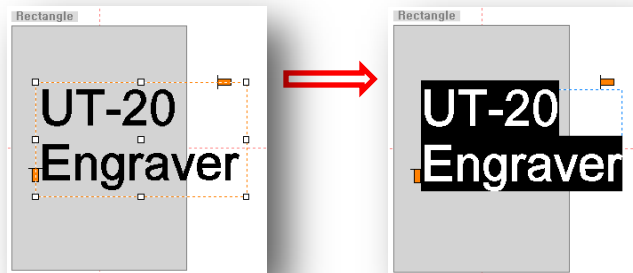


Flat Surface Engraving: Basic layout information

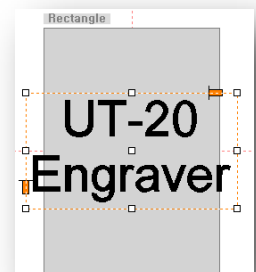
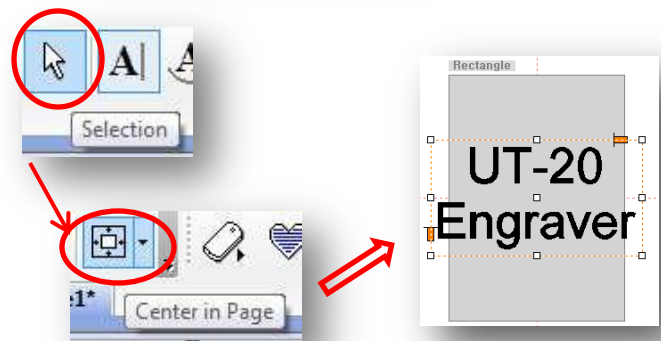
5) Click on the font tab and choose the desired font. **** Additional fonts can be added by downloading (True type fonts) from independent websites for free and copying it to your fonts folder in the control panel.**



6) Enter the text and click on the center justification tool to align if necessary. The text must be highlighted before alignment.

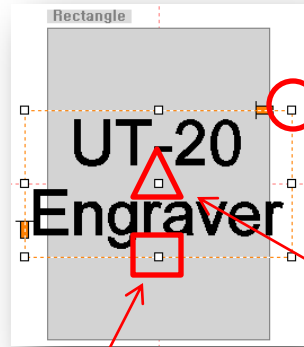


7) Click on the selection icon to select the message. Then click on the center to page tool to center the message.



Flat Surface Engraving: Basic layout information

8) The message and the sizing nodes must fit inside the work area. Right click on the corner nodes and drag towards the center to shrink the message. Then click the **center to page tool** again to re-center the message. Repeat steps until desired outcome is achieved.

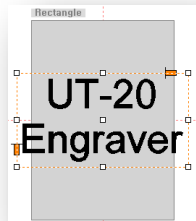


Right click on the corner node and dragging it in or out will change the size proportionally.

Right click and hold to move the object freely.

Right click on the node and dragging it in or out will change the size one way.

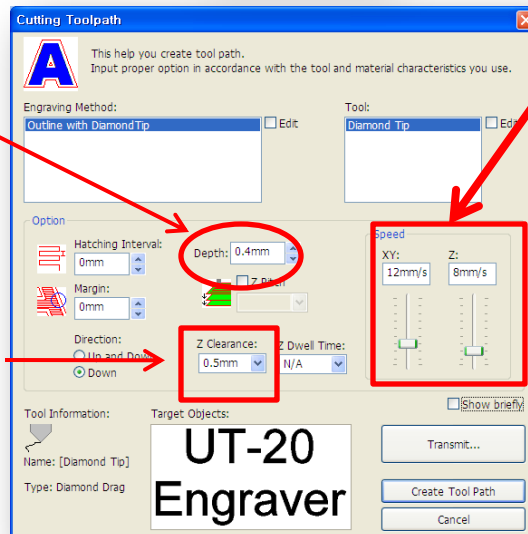
9) Once the object is sized and placed within the work area, choose from one of three type of engraving styles.



Double line engraving

Depth: Controls how hard to press down to engraver. Recommended 0.4mm

Z- Clearance: Used when engraving object has a slight curved surface or uneven surface. Recommended 0.5mm for flat and 3.0 – 5.0 for curved.

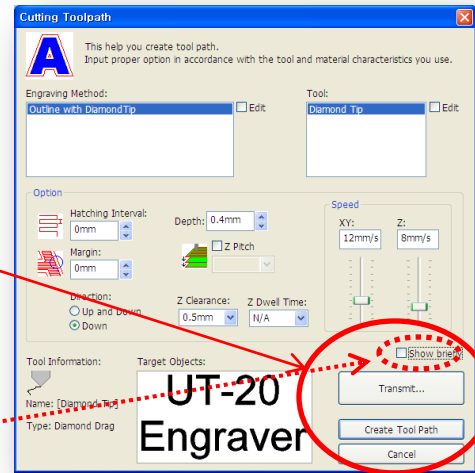


XY- Speed setting controls the side to side movement speed. Recommended 20-24 mm. **Z-Speed** is the up and down speed. 15-20 mm.

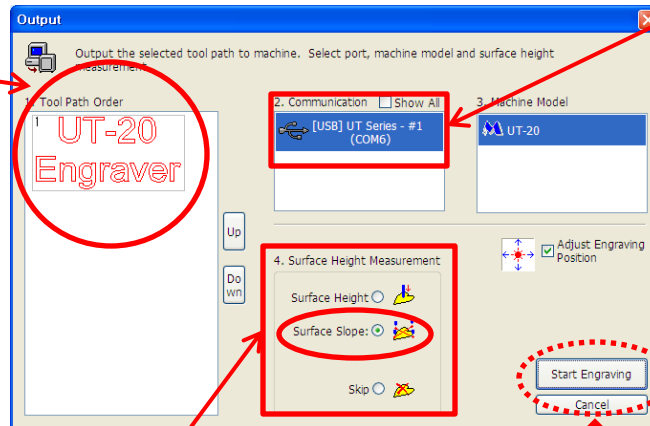
Flat Surface Engraving: Basic layout information

10) Click Transmit to open up the output menu. You can also click create tool path to view or add additional work in to your design.

**** If the menu is in abbreviated mode, click on show briefly to expand the menu options.**



Make sure this window displays the selected work to be engraved.



Shows the connection status between your PC and the Engraver. If it's blank, please make sure the USB cable is connected on both ends.

Surface height measurement: measures the slope of the plate. Improves the accuracy of the engraving on uneven surfaces.

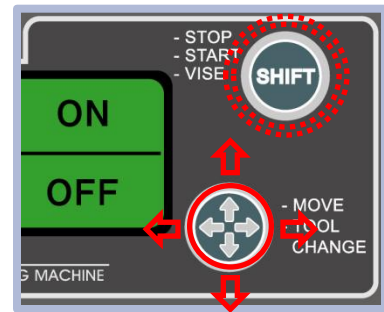
11) Click (Start Engrave) to transmit the data and start engraving.

Flat Surface Engraving: Basic layout information

12) Once the data is transmitted to the engraver, the engraver will move over the engraving object. A short beep will sound and a laser guide will turn on. The red point indicates the center of the design.

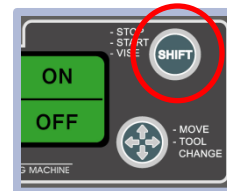
13) Before engraving any designs, you can view the area to make sure it fits correctly on the engraving object. Make sure to view all 4 sides of the area.

14) ** (OPTIONAL) Using the directional keys, you can manually move the work area. First, press **SHIFT** key. Then press the directional key to move. If you moved more than you need, move to the opposite position by pressing **SHIFT** key.



Press and **hold down** the directional key to move fast. **Press and release** to move in short bursts.

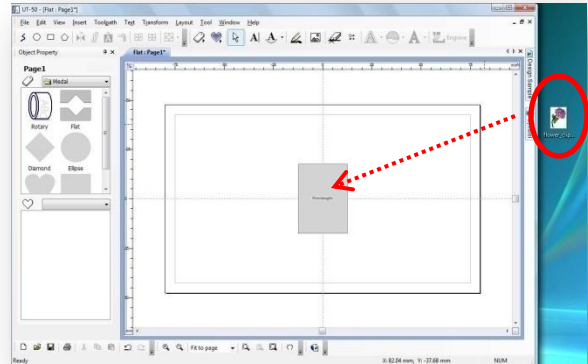
15) Press and hold START for 3 seconds or until a long beep then let go start engravings.



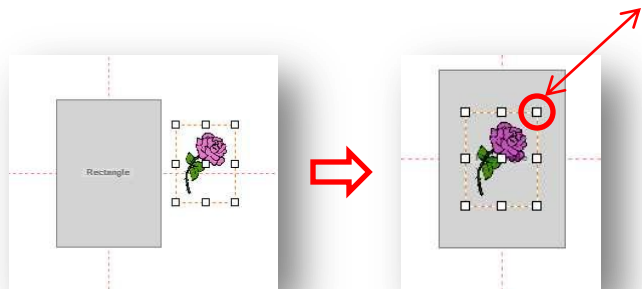
Engraving Images: Basic layout information

1) Please refer to page No.3 for measuring and preparing for flat engraving.

2) Secure your engraving object on the vise. Then choose the image to be engraved. We recommend clip arts, bmp or jpg images with white background. Photo images can be engraved, but results may vary and ***not recommended***.

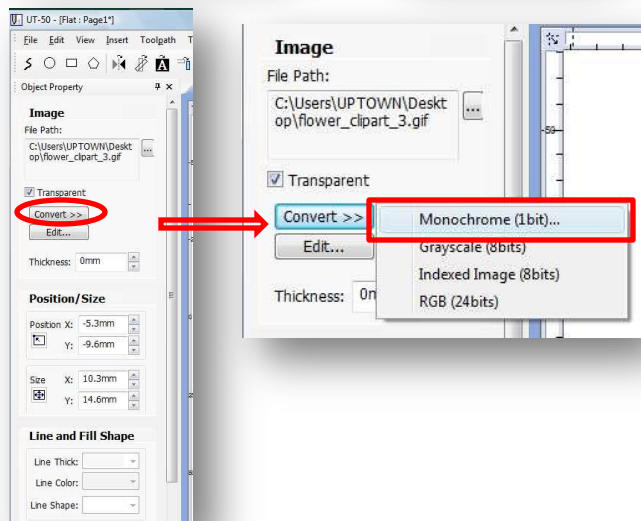


3) Images can be simply dragged on to the screen or copied and pasted.



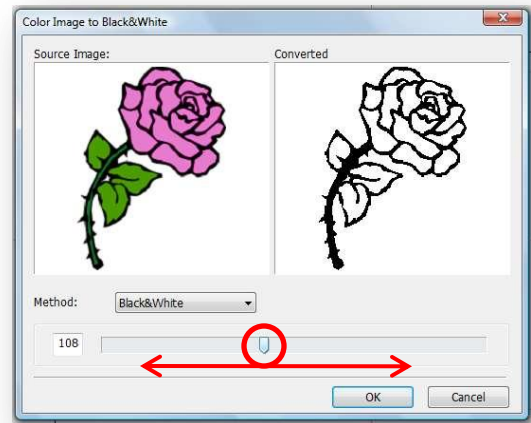
4) Place the image to desire location and then resize it if necessary by moving the corner nods in and out.

5) All images must be converted to black and white before engraving. Select the image if not selected, then click (Convert) tab on the left hand side of the screen. Then select Monochrome color which will bring up the contract tool.

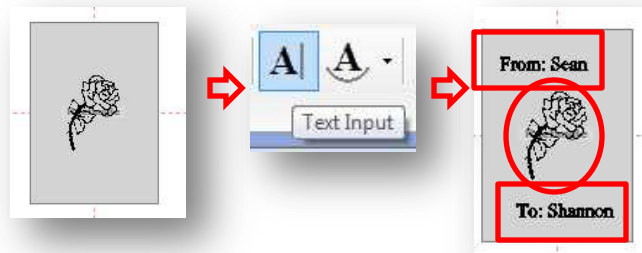


Engraving Images: Basic layout information

6) Slide the bar left or right until the image is adjusted to your preference. **** Note :** *Only the black outline will be engraved. Black dots or spots will also be engraved. It might be necessary to use additional software to touch up the image.*

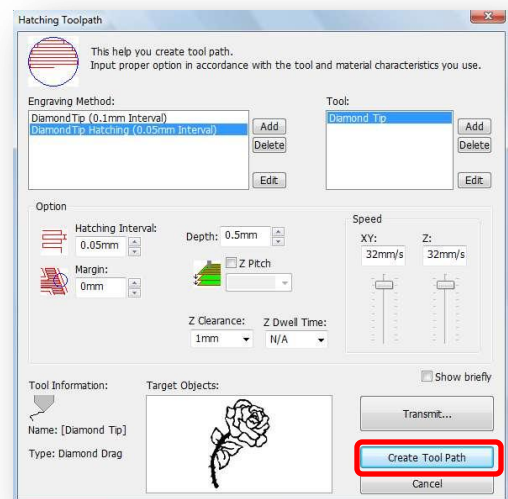


7) Once the image is converted, additional images or text can be added.



8) Depending on the number of components in the design, each design can be assigned a different tool path.

Rose will be engraved with the hatching tool path.
***** Click (Create Tool path) to add additional designs for engraving.**





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