

# Trotec Tool Guide - Flat Cutting and Engraving

## Trotec Laser Speedy 300

Manuals:

[JobControl-Manual-EN.pdf](#)

[Handbook-for-engravers.pdf](#)

The Trotec Laser can cut and engrave a variety of materials from a digital file in fine detail.

## Usage Highlights

Bed size is 21 x 17"

SAFETY	CARE	CLEANUP
1. Always keep the lid closed, do not tamper with the safety switches on the lid.	1. Do not force the lid open higher than the shocks allow.	1. Vacuum up small parts, clean catch tray when numerous small parts have fallen between the honeycomb.
2. Cut and engrave approved materials only.	2. Handle the honeycomb table carefully, bent surfaces cause cuts in the underside of the materials.	2. Place the rotary tool back in the storage cabinet.
3. Be sure both fans are operating.	3. Submit a <a href="#">maintenance request</a> when needed.	3.

## Personal Protective Equipment

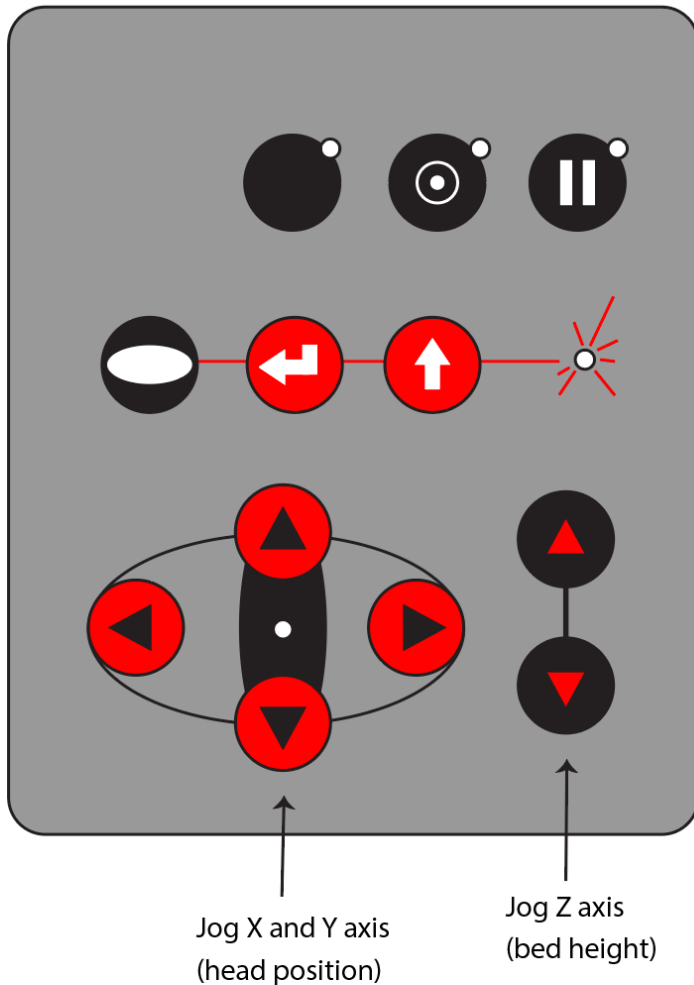
- Noise cancelling headphones
- Clothing and closed-toed shoes of natural materials that will not melt to skin (i.e. cotton, denim, leather) if they catch fire.
- Gloves may be useful to keep hands clean and avoid cutting skin on sharp edges.

# Tool Anatomy

1. Power Switch - on/off switch, located on the back left of the machine
2. Stop button for emergencies
3. Maintenance Tag - will be posted only for Yellow (caution) or Red (do not use)
4. Exhaust fan - pulls smoke from the bed to outside, controlled by power strip on left of desk.
5. Lid
6. Bed, gantry, Lens carriage
7. Control panel
8. Desktop computer

Add photos here!

## CONTROL PANEL



# Tool Safety

## Common Hazards

- The lid of the machine protects against stray emissions and eye damage. The lid should always be shut when in use, there are switches to automatically turn the laser off when the lid is opened. Immediately report any problems with the lid.
- **Ventilation:** Make sure the fan is on before cutting.
- **Flames:** Watch for flames and pause the laser and use spray bottle with water if a flame develops.
- **Cuts:** Bodily hazard of being cut by your own sharp material.
- **Toxicity:** Only use approved materials on the machine to avoid creating toxic gas.
- **Noise:** The combined sound of the Trotec motors and the Rabbits is **LOUD!** Noise cancelling headphones recommended.

# PROHIBITED MATERIALS

Material	Danger!
Chlorinated plastics (PVC/plastic #3, vinyl, artificial leather, Moleskin notebooks, polymer clay, Sculpey)	Emits chlorine gas
Polycarbonate/Lexan	Cuts poorly, absorbs laser, discolors, may catch fire
ABS	Emits cyanide gas, melts, bursts into flame
HDPE (plastic #2/milk bottle plastic)	Catches fire and melts
Polypropylene foam (plastic #5, foamcore, styrofoam)	Catches fire
Fiberglass	Emits dangerous fumes
Coated carbon fiber	Emits dangerous fumes
Pressure treated wood	Emits dangerous fumes
Galvanized metal	Emits dangerous fumes
Mirrored surfaces, including uncoated metal	Will not cut, reflects laser beam, potentially damaging the lens.
Mystery material	Refer to the Materials Safety Datasheet MSDS or Safety Data Sheet (SDS) for anything not listed above.

## File Setup

### Using ADOBE Illustrator

1. You can use any vector based software to design your artwork as long as it can export files using file types .svg or .ai. Save your file to a USB thumb drive and bring that to the computer.
2. Open Adobe Illustrator on the desktop computer.
3. New from template> Desktop > Template Trotec\*. This template contains the palette below as well as the Graphic Styles palette where red and black are already set up.
4. Copy and paste your artwork into this document.
5. The software that this machine is picky about the line types it can use. Make sure your cutting lines are 0.001 stroke width and the colors are as listed as in the chart below for them to be read.
6. Print - Job Control will start

### Using Corel Draw

1. Save files as svg
2. Open Corel Draw

3. Check line weights for cutting are 0.001 and any other colors are the same as the chart below.
4. Print - Job Control will start.

## Document color setup

The TROTEC JobControl allows the selection of 16 different colors in the material templates to specify 16 different power levels during cutting or engraving. When using this function, the colors in the graphics program must match exactly the colors listed in the TROTEC JobControl (on using Corel draw make sure that color management is OFF). In some graphics programs these Basic colors are already predefined, with other programs, you must define each color separately with its RGB components first. If the 16 driver colors are not automatically available in the software, use the values in the following list:

**\* This set of colors can be found in the Trotec template on the desktop. Corel Draw RGB defaults to these. (double check)**

No	Color	RGB Color Model		
		R Red	G Green	B Blue
1	Black	0	0	0
2	Red	255	0	0
3	Blue	0	0	255
4	Desert	51	102	153
5	Cyan	0	255	255
6	Green	0	255	0
7	Grass	0	153	51
8	Forest	0	102	51
9	Olive	153	153	51
10	Brown	153	102	51
11	Walnut	102	51	0
12	Plum	102	0	102
13	Purple	153	0	204
14	Magen	255	0	255
15	Orang	255	102	0
16	Yellow	255	255	0

## Machine Initial Setup

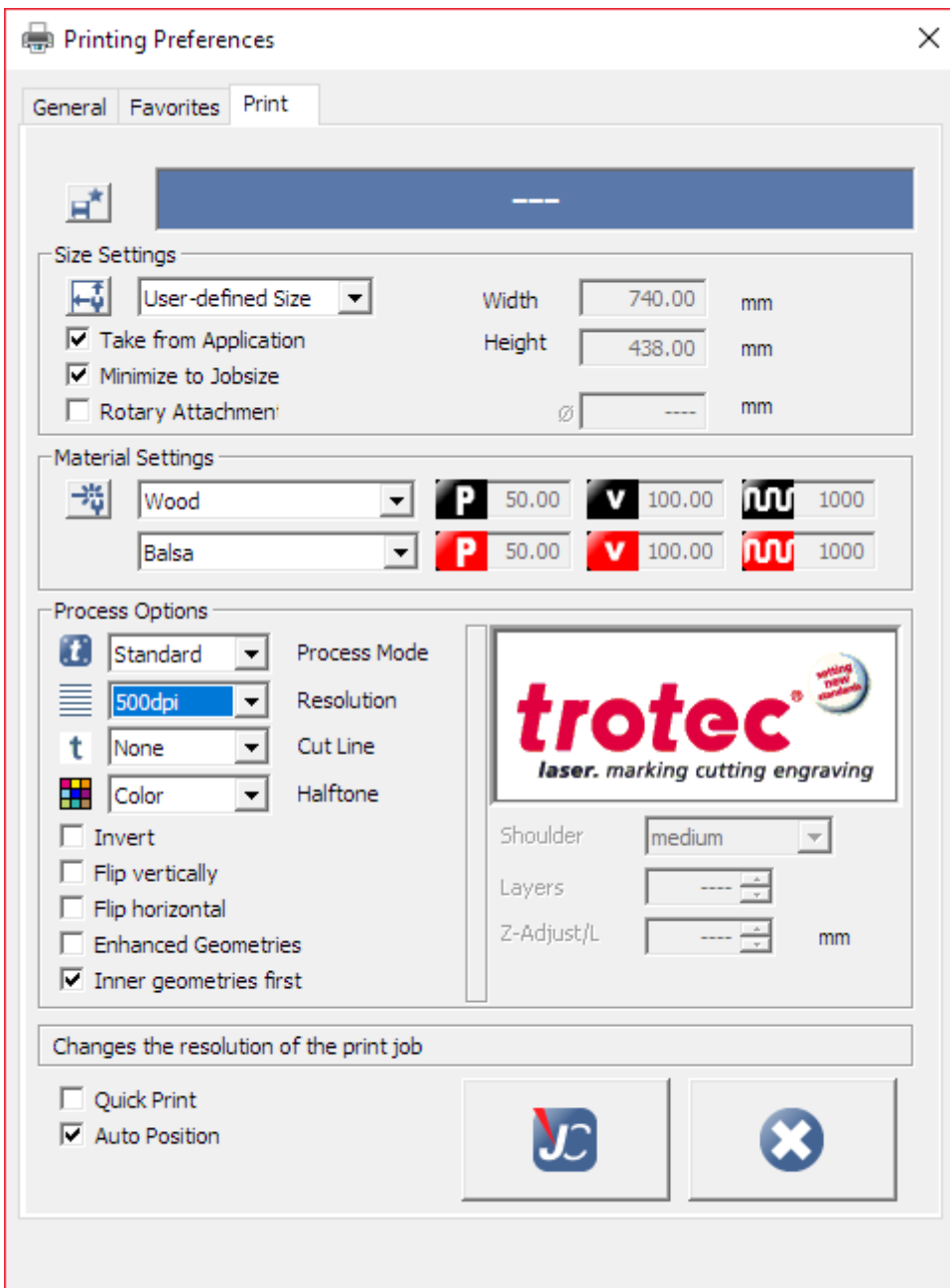
## SETUP CHECKLIST

1. Be sure the bed is clean and level (as much as possible for a warpy old bed)
2. Open your file in a vector draw program and check for duplicate layers, correct size for your material, and the correct colors. Remove any clipping paths, bounding boxes, stray paths.
3. Ensure your material is not on the list of **Prohibited Materials** posted on the top of the lid.
4. Turn on the switch at the back of the machine.
5. Switch on the exhaust fan at the side of the computer table.

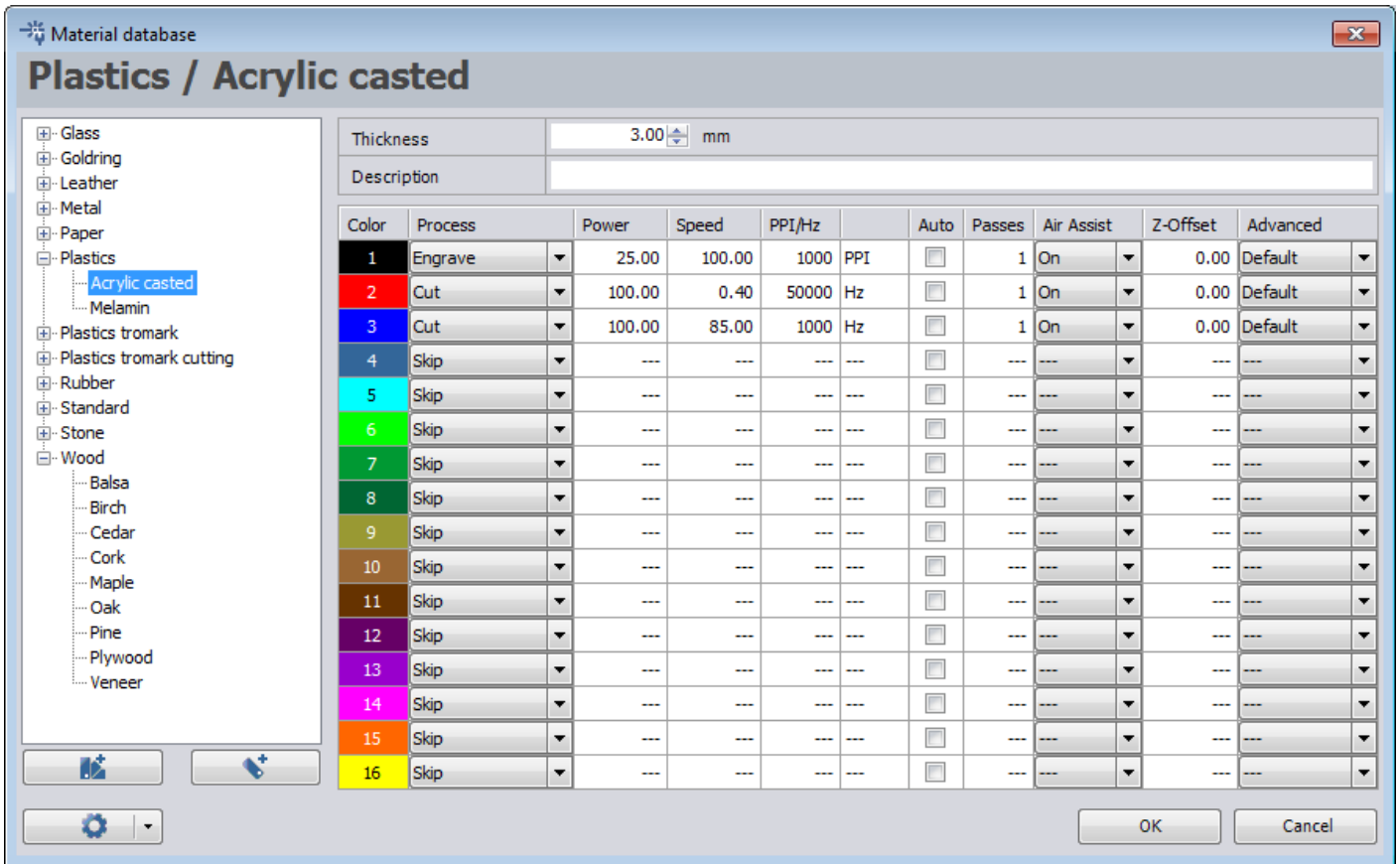
## Job Control

**The Job Control software functions more like a driver for a desktop printer, in other words, you can't open files directly in Job Control, they need to run through a vector draw program "*Print File*" dialog boxes. There are three levels to this:**



1. Print, click on the "Preferences" button.
2. You will see Printing Preferences, size will be "User Defined" or Bed Size"
3. (Optional) Material Setup (also available in Job Control, the two will talk to each other)



Materials Settings: Use a thickness and material that best matches.



Click OK, then the JC Button, Then JC on the original screen. Job Control will start.

1. To see an actual preview of your job on the bed, click the WYSIWYG button  (Ctrl + I)
2. Set the speed/power settings for the material & line colours in the Material Templates window 
- 3.

1. Your artwork will appear on a panel on the right hand side in the "Jobs" panel. Click and drag to add it to the bed. The art can be placed on any of the intersections of the crosshairs or directly on center. If the
- 2.

Add more here!

## COMMON SETTINGS

Settings for this machine are stored in an internal database.

Add more here!

# CONSUMABLES

Some approved materials can only be etched and not cut using this machine. You may purchase your own material, purchase from our consumables store, or use material from the laser scrap bins.

Material	Allowed for cutting	Allowed for engraving
Plywood	Up to .25" thickness	yes
Acrylic	Up to .25" thickness	yes
Paper	yes	yes
Cardstock	yes	yes
Cardboard	yes	yes
Leather	ugh, Ok	ugh, Ok if you really have to!
Metal	no	Will etch anodized aluminum or Ceramark coated light metals, but not engrave.
Stone	no	yes
Glass	no	yes
Natural fiber fabric (cotton, wool felt)	yes	Same as Rabbit guidelines

## Basic Operation

### OPERATION CHECKLIST

1. Power on the machine
2. Power on the exhaust fan
3. Connect the machine and computer
4. Add your material
5. Level the bed
6. Move the head to your origin
7. Close the lid
8. Cut using Job Control

# OPERATION BREAKDOWN

1. Power on the machine. The switch is on the back of the machine on the left side, near the circuit breakers.
2. Power on the exhaust fan by turning on the power strip on the front left leg of the desktop computer table.
3. Connect the machine and Job Control by clicking the USB port button in the bottom right corner.
4. Add your material. Open the lid and place your material on the bed. You can secure the material using wood clips. This bed is made of aluminum and therefore is both delicate and not magnetic.
5. Move the head over the material. Hang one of the focus measuring pieces on the laser head and raise the bed slowly until the piece falls off.
6. Move the head to your origin
7. Close the lid
8. Cut using Job Control
9. Watch your job to make sure it goes smoothly. If you notice a problem, you can:

**A.** pause the job with the pause button on the control panel.

**B.** Pause using the Job Control Software. (the pause button on the machine panel will not allow a restart of the job, using pause in the software will let you finish where you left off.)

**If your material catches on fire, pause the job and use the water spray bottle to extinguish it.**

## Cleanup

### CLEANUP CHECKLIST

1. Power off the Laser
2. Reset any modified computer settings to default
3. Vacuum the interior so material does not build up beneath the honeycomb
4. Note any maintenance needs or concerns on the tag and at [protohaven.org/maintenance](https://protohaven.org/maintenance)
5. Recycle or dispose of waste in the single-stream scrap bins or trash can
6. Return the rotary tool to the cabinet.

# SCRAP BREAKDOWN

There are two black scrap bins reserved for laser waste. Maintaining these is a shared, communal responsibility.

When you notice the scrap bins are full, it's time to take it to the dumpster out back. Feel free to enlist a helping hand.

If you notice valuable material while emptying the bins, use your judgment to selectively save a few pieces or take it home for your personal use.

# MAINTENANCE REQUESTS

1. Update the physical Maintenance Tag at the machine
  - Yellow can be used with caution
  - Red cannot be used without hazard to either the user or the equipment
2. Record issues at [protohaven.org/maintenance](http://protohaven.org/maintenance). This notifies our staff and volunteer maintenance crew of any issues

# Troubleshooting

Common Issues	Possible Causes	Resolutions
Job control WSIWYG doesn't show all lines in a cut or engraving	Not using the correct line weight or colors.	Use the Illustrator template "Trotec Template"
The honeycomb bed doesn't show up in JC, I see the rotary tool	The last setup was for the rotary tool.	Go to Settings/Options/accessories and uncheck rotary tool, check honeycomb bed.**Valerie check!
My parts don't fit in the JC engraving area	The last setup was for the rotary tool	Print setup + + **Valerie check! Set to "Bed Size"

# Special Setups

**Rotary tool** - this is a separate class and clearance.

# Additional Resources

Where can one find materials, tools, or other consumables (either local or online vendors)?

What helpful video tutorials are there where one can dive deeper into operating this tool?

If this is a CNC tool, where can one learn more about the CAD, CAM or CAD software?

# Staff-Use

## AUTHORIZED MAINTENANCE CREW ONLY

If you are part of the maintenance group please log on to the #maintenance channel of our Discord server to:

- Perform a Maintenance Action
- Request a Maintenance Purchase
- Review complete Maintenance Logs for each machine
- Generally chit-chat about maintenance

## Hippocratic Oath

- Start with the Manual
- Ask questions
- Do no harm
- Know your limits
- Document your actions

What preventative maintenance areas does the manual indicate? For example, a regular oil schedule, how often to tension belts/blades, and when to change a filter.

This is the area to simply name the topic, frequency, and page number where more information can be found in the manual.

Links to helpful videos or additional resources would be a helpful secondary source.

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