



OPERATING ROTARY ATTACHMENT STEP BY STEP: HOW TO ENGRAVE ON CYLINDERS

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#	Step	Key Points	Why	Picture
1	Unhook laser connection	-IMPORTANT: MAKE SURE POWER TO LASER IS OFF -Turn off power -Unscrew connection	-This is necessary so you can plug in the rotary tool. Disconnecting or connecting while power is on can damage laser and injure operator.	
2	Remove hex plate from bottom of laser cutter	 -You can place it next to the laser cutter while using the rotary. -The hex plate floats freely in the laser and can be lifted out -Be careful not to bump laser head or mirrors. 	The rotary tool requires extra space and the hex plate is not needed.	

3	Place rotary on left hand side of laser cutter. Connect to laser cutter.	The heavy end with motors should go against the left hand side. The scissor jacks on the right. The unit should be aligned in the center of the black table. The collar of the connector can be loosely tightened.	Having the rotary on the left side in this laser produces more consistent results.	<image/>
4	Turn Laser Cutter on	 -There are three keys needed: Toolbox key Main Power key Laser key (inside toolbox) 	User the laser key in the laser machine to turn on. Check main power key is turned on. Check if emergency stop is engaged if the laser is not turning on.	Main Power Image: Comparison of the second seco

5	Turn on Air Filtration system	- Button is red when the system is off			DFA PRLD LEADER IN CTION TECHNOLOGY			
6	Check temperature on water chiller	If temperature at or above 26 C you will need to wait until it cools down.	Using the laser cutter when the temp is above 26 can damage the laser.					
7	Open your design file on the computer	 -Double check file type (svg, pdf) -Artwork should be sized to fit on your material. -Make any edits/sizing in the software used to create the file. 	You cannot edit files once they are sent to the laser software.	INKSCAPE .SVG	PDF READER .PDF	MS WORD .DOCX	GOOGLE SLIDES Download as PDF	GOOGLE DOCS Download as PDF
8	Open RetinaEngrave	-Icon located on the desktop	This program is what controls the laser cutter.					

9	Connect laser	-ProLF 24x16	-This allows you to	🔌 Full Spectrum Laser RetinaEngrave3D 4.420
	cutter to	>Specify IP Address for	control the laser	File ProLE 24x16 Tabs Help Inch Current Position: 0 0 2 Move To
	RetinaEngrave	Connection > Enter IP address shown -Once entered you should see 'Connected' in green in the bottom left corner of the program	cutter.	Change Laser Profile Firmware RetinaEngrave Card Commands Configure Static IP Address Specify IP Address for Connection Save Job as Binary File Send Binary File To SD Card Save and Send Current Job To SD Card Material and Focus Tests
10	Center laser head on rotary tool.	Rotary tool should be centered on the bed. Laser head centered on rotary tool. The cone of the laser head assembly should be over the highest point of the cylinder. Try aligning the red pointer laser in the center bolt heads of the rotary unit.	TIP: You may need to raise or lower the bed of the laser. Use the Z+ to raise the bed. Use Z- to lower bed.	

11	Enable rotary	-Press the Rotary cylinder	Not making the DPI	
	in	icon at the top of the	change will result in	Full Spectrum Later Retinating average 4:312 File Robby 2012 Table Halts Just Classed Robbys 1 More To B
	RetinaEngrave	screen and check the box	an engraved image	
	software.	to enable rotary.	that is distorted.	Raster Engrave Vector Gut Design View
		-Change DPI in dropdown based on the material used. Due to a quirk in software, it is necessary to change the DPI setting. If you require the default setting of 500 DPI. Change it to 250 DPI, and then change it back to 500 DPI.		Rotay Steps/hch (Machine specific) 440 Number of X sweeps/hch 235 235 V Axis Speed Divisor (1 = full speed, increase to minimize slippage) 410 125 125 125 125 125 125 125 125
12	Send design to laser cutter	 -In your image viewing software select 'Print' and one of the printer options will be 'Full Spectrum Engineering Driver' -Your image will import to the RetinaEngrave software Select 'Actual Size' on print screen under Paper Size and Handling 		Print General Rendering Scient Professional CM1410 Series Fax Full Spectrum Engineering Driver Full

13	Make changes to design in RetinaEngrave	Rotate your artwork so it will be applied correctly to your cylinder. You will want to mirror image your artwork. The rotary tool is turning in the reverse direction that is typical requiring the artwork to be mirror imaged.	Mirror Image Icons:	File Hobby 20x12
14	Make sure Raster Engrave tab is selected at top of page.	-You cannot use the Vector cut option with the rotary; you can only engrave.		Image: Spectrum Laser RetinaEngrave3D 4.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help Inch Current Position: 16.064 1.42
15	Place material on rotary.	-Material is typically placed in top left of the bed for best results. -Avoid contact with the laser head.		

16	Move laser	-Use 'Jog' options on	- D X
	head over	upper right part of	
	material.	RetinaEngrave software	
		to move the laser head.	Stor Ing Ing Up
			Jog Falt Break Jog Fight
		Place a check in the "Slow	Ang Down
		Jog" box to make slower	Racter Romer to 100 Syntee Racter Ignore All Vector
		more exact moves.	Ranter Speed % 100 - Butteration Mode
			Source Image Infe 8/W Theshold 140 Watthi 4005pc (2015) Watthi 4005pc (2015)
		With rotary enabled only	DPI 300-000
		the jog left/right options	Criter Speet Proc Dasse Shifting
		will move the head. Jog	
		up/down will rotate your	Vector Current %
		object on rotary.	
		*You can move the laser	
		along the y-axis manually.	
17	Measure	Use the Z+ to raise the	- 0 X
	Focal Point (Z	material higher.	
	height)		t lowe here
		Use Z- to lower the	
		material.	
			And the function of the functi
		When focus ruler touches	
		top of material when	E Although (1) Man Mar Mile SH1
		hanging off the brass	
		bracket on laser head, the	And and a set of the first factor
		laser will be in focus.	
			Material

18	Make sure object is level	-Use small bubble level in tool kit to check if item is level. -Use knob on scissor jack to raise or lower the object.	If the top of the cylinder is not level, the result of the applied artwork will look distorted.	Lovel Adjust
19	Make sure	-Use log Up /Down	If object shifts while	
	object is secure on rotary by jogging up and down.	buttons to rotate material to test how secure it is on the rotary. Do a few full rotations to make sure the cylinder rotates smoothly without any issues.	you are engraving, it will negatively impact the results. If a portion of the cylinder extends beyond the rollers, it may drag on a bolt head or frame of the rotary tool. This will cause it to rotate inconsistently.	No No

20	Jog laser head to start position.	Use the jog buttons to move the laser head to where you would like the laser to start applying the artwork on the material.			Red pointer laser light indicates start position location on material. This will be the upper left of the artwork.
21	Perform Perimeter Check	Click the perimeter step button. Each time you click the button the laser head will move along one of the	This is to double check the placement of the artwork on your material.	Start Position	Full Spectrum Laser RetinaEngrave3. 1.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help The current Position: 16.064 1.42 Move To Total Total <
		four sides of your artwork's perimeter. You will want step around all four sides and return the laser head to the left corner.		2 nd Click	▲ Full Spectrum Laser RetinaEngrave3D 4.420 - Direct Pric (1.77 seconds) File ProLF 24x16 Tabs Help Inch Current Position: 14.044 1.42 @ Move To Raster Engrave Vector Cut Design View 3D Engrave Full Spectrum Laser RetinaEngrave3D 4.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help Inch Current Position: 16.044 1.42 @ Move To File ProLF 24x16 Tabs Help Inch Current Position: 16.044 1.42 @ Move To File ProLF 24x16 Tabs Help Inch Current Position: 16.044 1.42 @ Move To Image: Color Col
		Be sure to return to the top left corner before making any adjustments to the position of the material or artwork.		3rd Click	Raster Engrave Vector Cut Design View Design view Full Spectrum Laser RetinaEngrave3D 4.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help Inch Current Position: 16.064 1.42 Move To Image: Contract Print (1.77 seconds) Image: Contract Position: 16.064 1.42 Move To Image: Contract Position: 16.064 1.42 Image: Contract Position: 16.064 1.42 Image: Contract Position: Image: Contract Position: 16.064 1.42 Image: Contract Position: 16.064 1.42 Image: Contract Position: Image: Contract Position: 16.064 1.42 Image: Contract Position: 16.064 1.42 Image: Contract Position: Image: Contract Position: Image: Contract Position: Image: Contract Position: Image: Contract Position: 16.064 1.42 Image: Contract Position: Image: Contract Position: Image: Contract Position: Image: Contract Position: 16.064 1.42 Image: Contract Position: Image: Contract Position: Image: Contract Position: Image: Contract Position: 16.064 1.42 Image: Contract Position: Imag
		Make any adjustments to either the position of the laser head, position of the material, or the artwork. Then do a second full perimeter check.		4th Click: Back to start	position

22	Enter power/speed settings	 -See manual for standard power/speed. You may need to experiment with settings on extra material to find the settings you prefer. GLASS: Speed: 100% Power: 2% DPI: 250 COATED METAL: 	 -These settings tell the laser how fast to move back and forth as well as how much power the laser uses. POWER: Higher percentage uses more power. SPEED: Higher percentages moves the laser head faster. Slowing the laser speed intensifies the power. 	Rete Trans - Longe View	33	n n Ruse Meize * Ruse Meize * Ruse Meize *		A Fund I I I I I I I I I I I I I I I I I I I
		Speed: 20%		Material	Engrave			
		Power: 80%			Speed	Power	Dither	DPI
		DPI: 500	PASSES : The number of times the laser will	Glass	100%	2%	No	250
		These are suggested	trace over the	Metal	20%	80%	No	500
23	Time Check	 starting settings, rou may need to adjust for your project. Click clock icon to get a time estimate needed to complete the job. Can you complete the job AND clean up before the end of your reservation? You may need to book a new reservation. 	artwork.	No Connection Not Homed	5		- Con	the Context Ts

24	Close Lid before starting laser	-Be gentle when closing the lid! It is heavy. The lid is heavy and will fall fast Use handle on front to lower gently.	-Safety first!	
25	Click Start	 -Do not open the lid while the laser is running! Observe job and watch for issues: Excessive smoke Fire Unusual Performance 	While glass and metal are not typical fire hazards, there is a chance missed debris from a previous job could ignite.	Full Spectrum Laser RetinaEngrave3D 4.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help Inch Current Position: 16.004 1.42 Move To Image: Color Colo
26	Wait for job to finish	 Pause Button: You can pause the job keeping the laser head in place in order to resume progress. Stop: Cancels the job and send the laser head back to the start position. 		Full Spectrum Laser RetinaEngrave3D 4.420 - Direct Print (1.77 seconds) File ProLF 24x16 Tabs Help Image: Contract Cut Design View 3D Engrave Stop

27	Open Lid and Inspect	If you do not move the material, it is possible to run the job again over the top. You can adjust your settings and rerun the job.	The laser will be removing the coating on the metal to reveal the bare metal underneath. Laser will etch into surface of glass.	LOGAN
28	Remove Material	Jog laser head out of the way if needed.		- D X
		IMPORTANT: Do not bump mirrors or laser head when removing materials.		V Store long Alg Ub Jog Left Gegink Jog Kight High Dame High Dame Rather Rower 56 100 Store Roller Spore Roll Spore Roller Rather Spore 10, 100 Store Roller Store Spore 10, 100 Store Roller
29	Turn Off Laser	Turn off power to laser.	Laser must be off so that you can	
		Use the keys to power off laser.	disconnect the laser.	
30	Disconnect Rotary Tool	Unscrew the collar of the connector of the rotary		
		tool.		
		Remove rotary tool and put away.		

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31	Connect laser motor	Reconnect the laser motor to the connection point.		
32	Clean Up	Vacuum up soot and debris from laser bed. Wipe table and work surfaces as needed. Return tools to toolbox.		
33	Check Out	See staff. Return key.	Staff will verify area is clean and all tools are present.	Keys that are not checked in from your account can result in additional fees.

TOOL INVENTORY

Drawer 1 – 7 items



- Focus Ruler (z-height guage) ٠
- Caliper •
- Level •
- Scissors ٠
- Knife •
- Measuring tape •
- Laser key ٠

Drawer 4



Drawer 5 – 1 item



Rotary Tool (Used for engraving cylinders.)

Staff Manuals

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- Instructions •
- **Rotary Instructions** •
- Suggested Power and Speed Settings •

Open Area Below Drawers



Vacuum •

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Drawer 2 – 3 items







Cleaning Instructions •