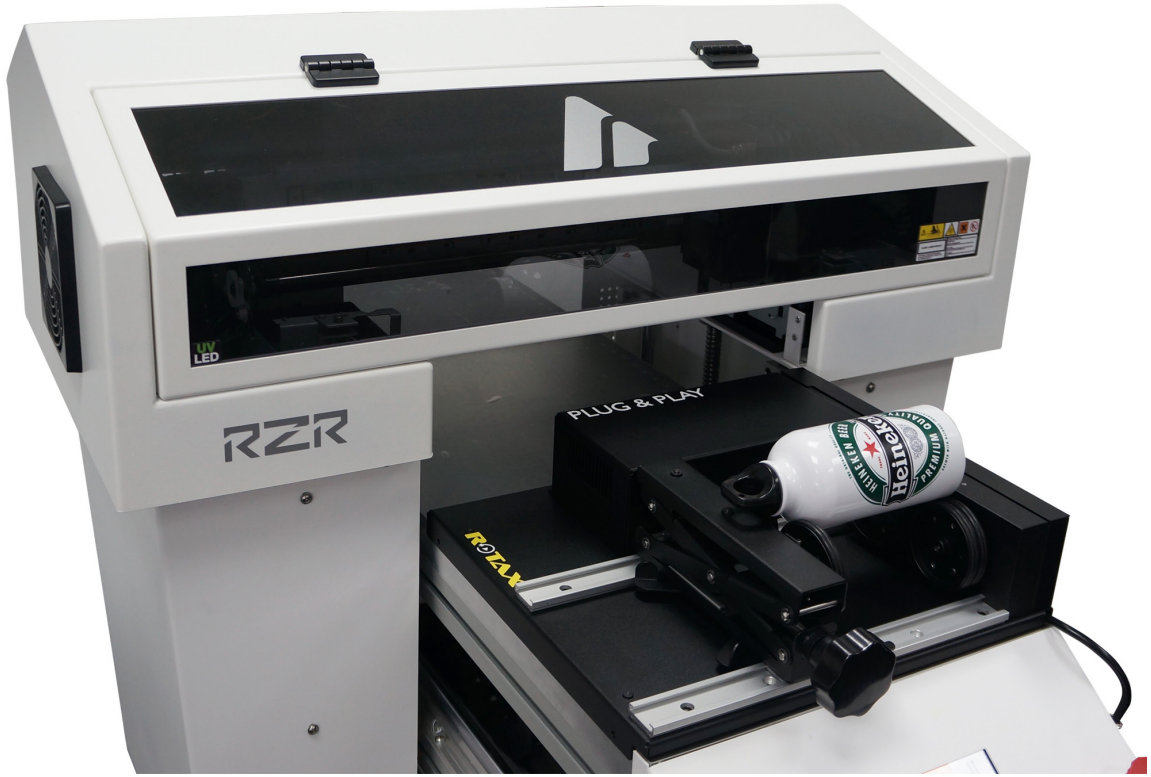
AZON Razor/Conti
ROTAX adapter

USER MANUAL



Technical Documentation

azonprinter.com

The new Azon innovation enables 360 degree printing on a wide range of materials. The possibilities of digital printing have now been doubled with specially designed rotary adapter. Rotax allows printing on a vast range of cylindrical objects with diameter ranging from 41 mm to 127 mm and height up to 279 mm.

With new rotary adapter, it is possible to print more varied print applications. Print on cylindrical and cone objects such as beer and wine glasses, cups, candles, tube, cans, tanks, vases, awards and much more. Rotax makes cylindrical printing efficient and precise by delivering both white and full colour prints.

Rotax attachment is easy to install, quick to mount and smooth to operate. It takes only two minutes to plug and play. Simply mount the adapter on the printer and insert a connector. User friendly settings and functions, simple installation steps, intuitive and user-friendly operation are only some of the features which will satisfy our customers' needs.

This **Manual** will cover basic usage of Rotary Attachment on Azon Razor UV Flatbed printer. Please read important notifications on next page before continuing.

When setting up the rotary for the first time, please read entire manual first.

Important!

Please read the First step guide to familiarize yourself with printer parts and functions before setting up Rotary attachment.

Make sure printing objects put on rotary do not exceed prescribed dimensions:

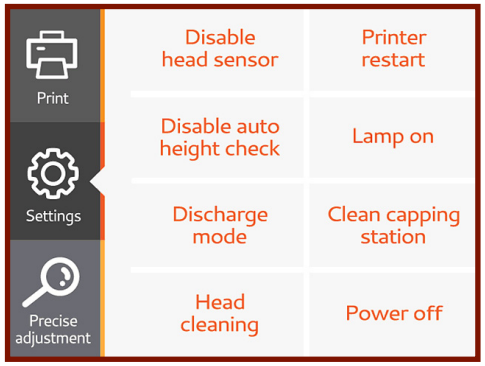
Minimum Diameter:	1.6”	41 mm
Maximum Diameter:	5”	127 mm
Minimum Height:	0.9”	23 mm
Maximum Height:	11”	220 mm*

* 220 mm is maximum span of ratary wheels, but 279 mm bottles with small diameter throats can be used safely

Table 1: Cylinder Dimensions

When using laser for height adjustment or Auto height check, make sure this options are not disabled in Settings menu.

Your settings menu should look like on picture 1:

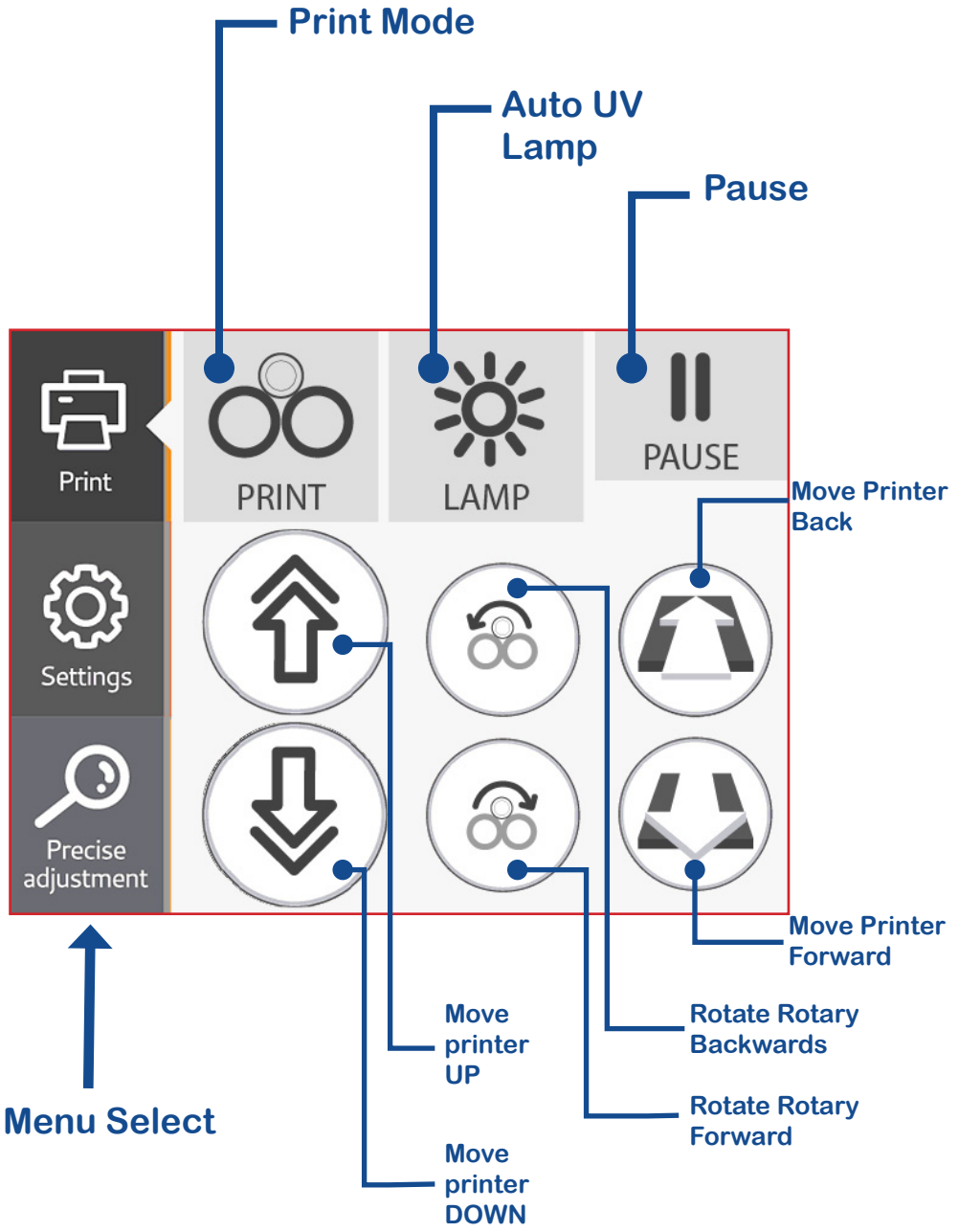


Picture 1: Settings menu

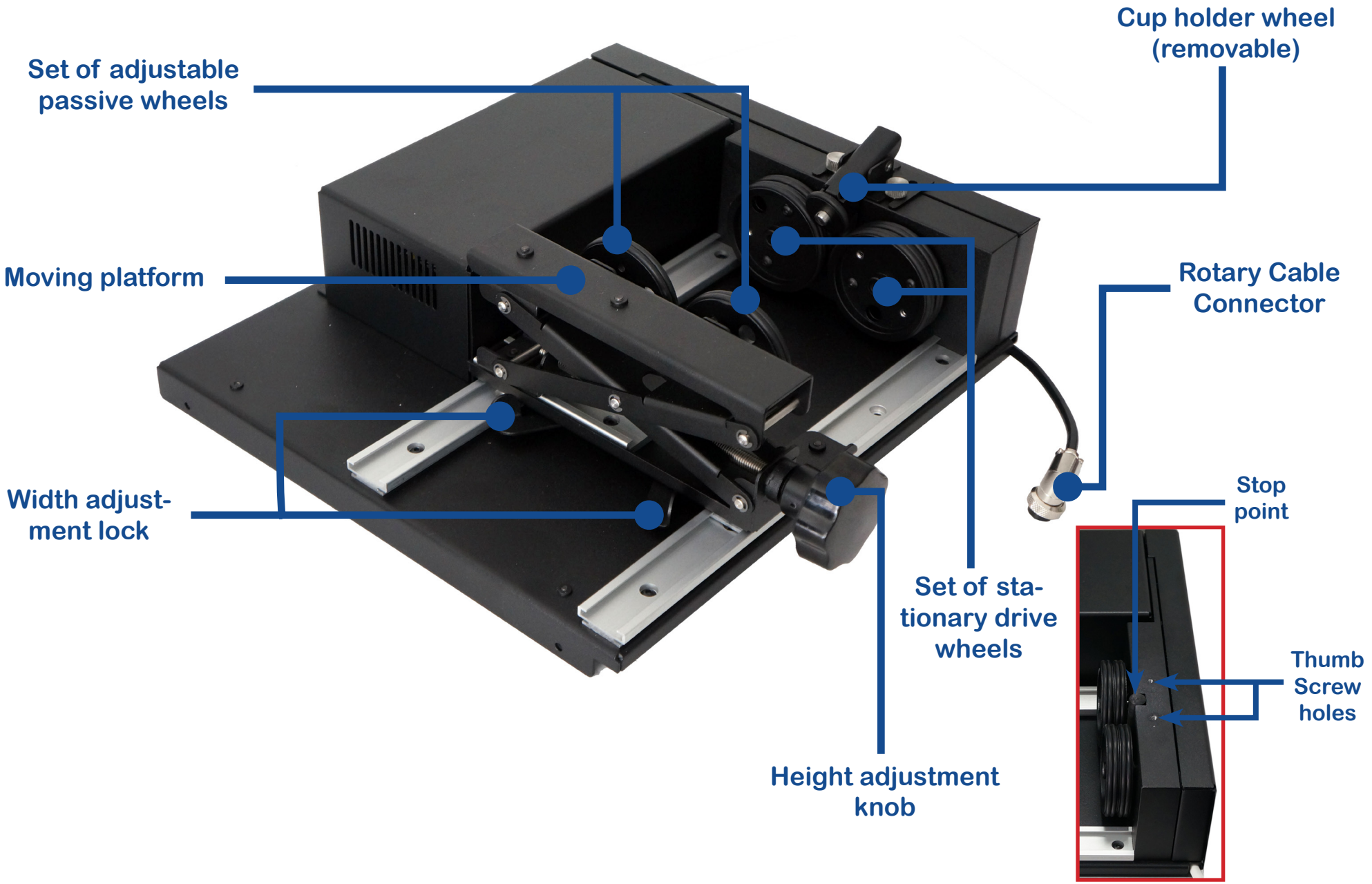
Make sure Top Cover is lifted when using Auto Height Check.

Make sure that Discharge mode is OFF when you are printing on Rotary, otherwise you will get an error.

Main Rotary Display



Main Parts


Cup holder wheel (removable)
Set of adjustable passive wheels
Moving platform
Rotary Cable Connector
Width adjust-ment lock
Stop point
Set of sta-tionary drive wheels
Thumb Screw holes
Height adjustment knob

Perform Nozzle Check

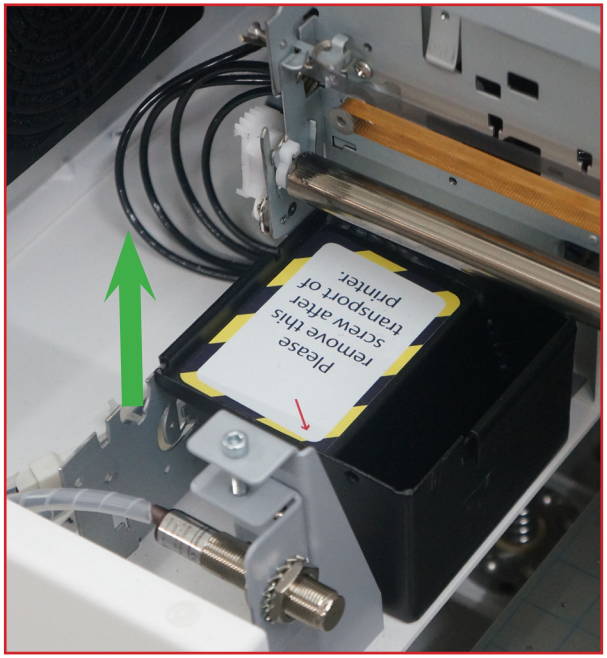
Before printing on Rotary, you need to perform Nozzle Check. If nozzle check pattern is not good the print also will not be good.
Refer to Service Manual if you get an bad nozzle check pattern.

Perform Slant Check

Head slant is also very important for quality of print.
Print the “alignment test” file and if test is not good **refer to Service Manual for head slant adjustment.**

Adjust the Spit Box orientation

For common usage (when printing on table) Spit Box needs to be set up like on **picture a**.
For printing on rotary, it needs to be set up like on **picture b**.

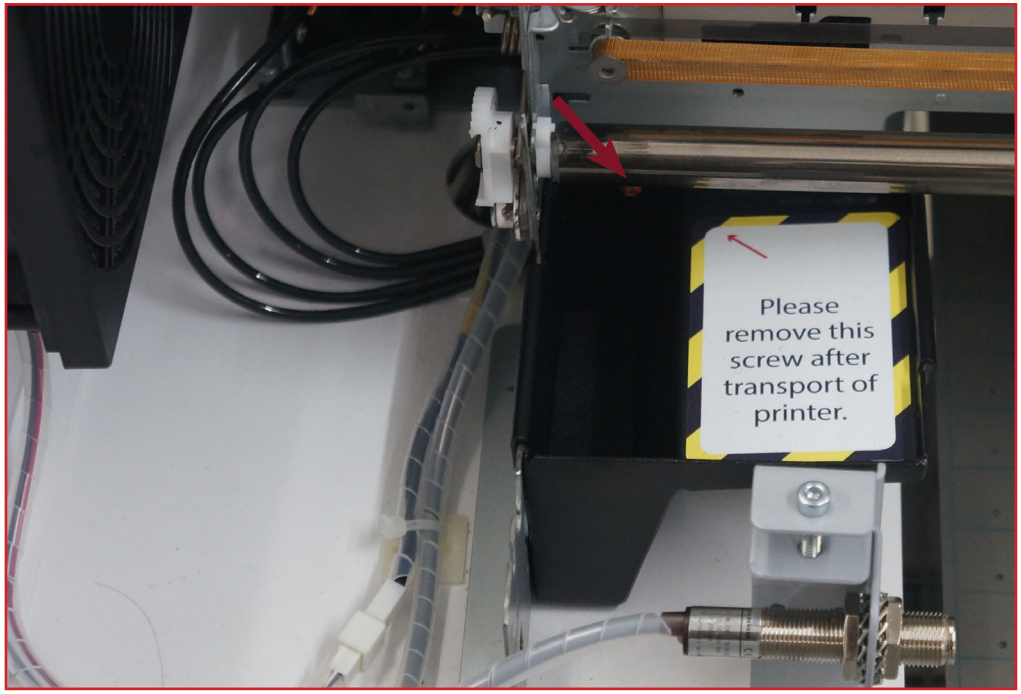


Picture a: Table printing setup

To rotate Spit Box first lift it up (green arrow). It has two hooks on both sides which are used to attach to printer construction.

When you remove the Spit Box, just rotate it for 180 in right direction and attach with hook to the construction. It needs to be positioned like shown on picture b.

If you didn’t remove the transport screw (red arrow on picture b) you need to remove it with 2 mm Allen type key.



Picture b: Rotary printing setup

After your are finished with printing on rotary you need to put spit box in table printing position, and clean the accumulated cured ink from box.

Make sure printer is **at the back position** so it is not in the way and it doesn't hit the Rotary.

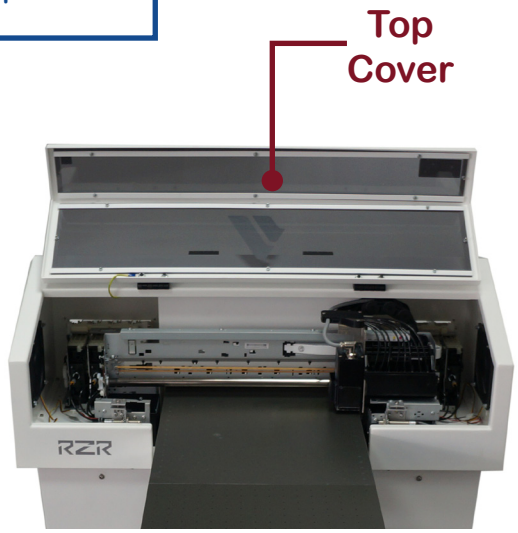
Move printer back.

Picture 2

You can move printer back by pressing the back arrow on display.

Hold it for couple of seconds and realise and the printer will automatically stop at back end position.

Lift the Top cover.

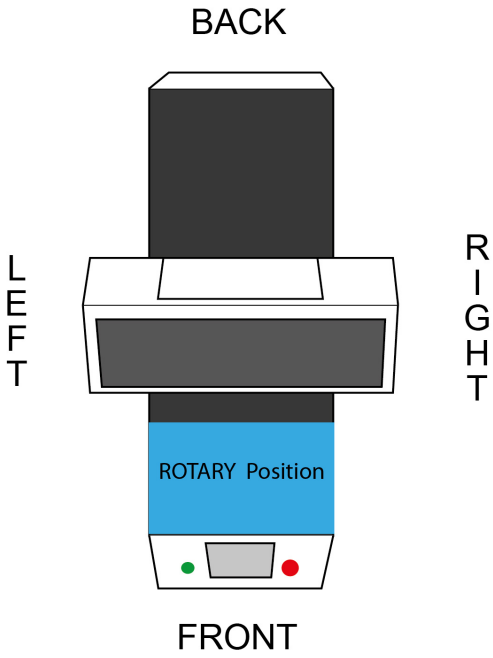


Picture 3

Rotary needs to be positioned exactly at front printer position (picture 3, picture 4).

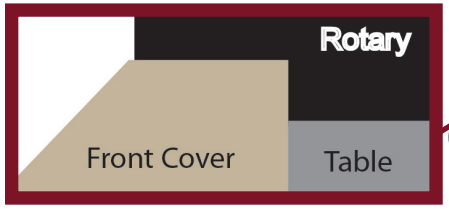
Attach the Rotary

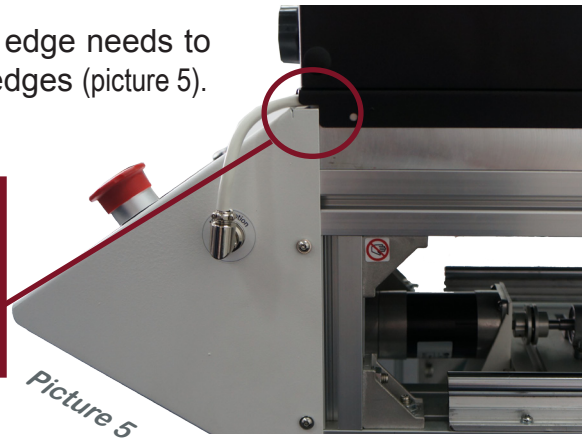
Picture 3



Picture 4

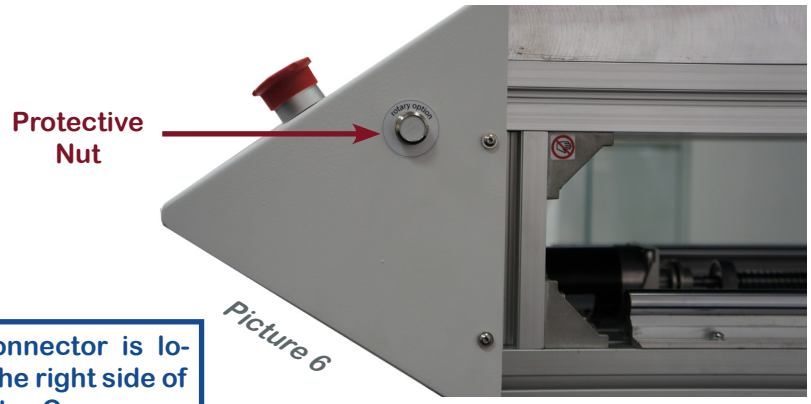
L shaped profiles from Rotary edge needs to fit with Front Cover L shaped edges (picture 5).





Picture 5

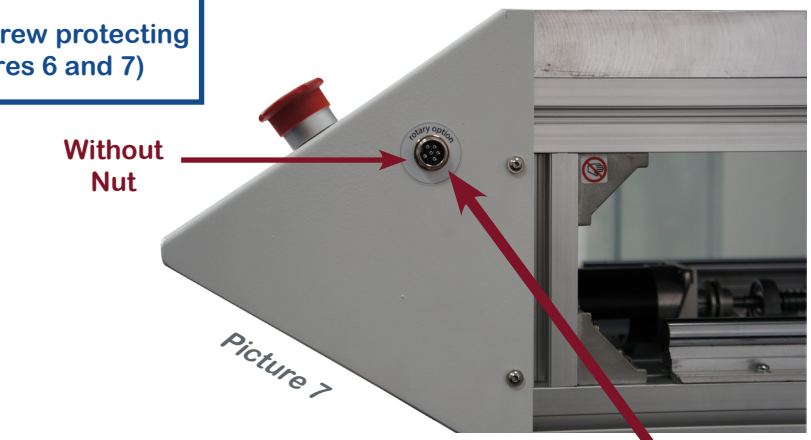
Plug in rotary cable.



Picture 6

Rotary Connector is located on the right side of Front Printer Cover.

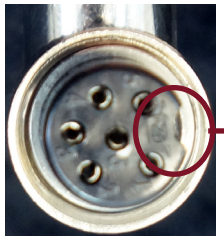
First unscrew protecting nut (pictures 6 and 7)



Picture 7

Make sure that hole from Connector corresponds to connector on machine (markings on pictures 8 and 9).

Once connected, rotate Connector nut in clockwise direction to fix its position.



Picture 8

Picture 9

When Rotary is connected you will get this screen on LCD Display

Picture 10

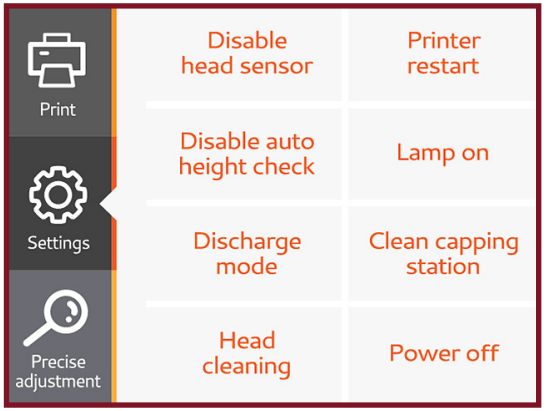
Touch the Display to continue.

Now you will get the main rotary display (picture 10).

Move the printer up

Move printer higher than rotary with the bottle, or lift it up to the end position (20 cm).

TIP: alternative is to put printer in Online mode, and it will automatically adjust its height, but make sure that in Settings menu head sensor and auto height check are not disabled (picture 11) and lift the top cover.



Picture 11

Now the printer should look something like on picture 12).

Picture 12

*** Arrow describes direction of bottle rotation in print.**

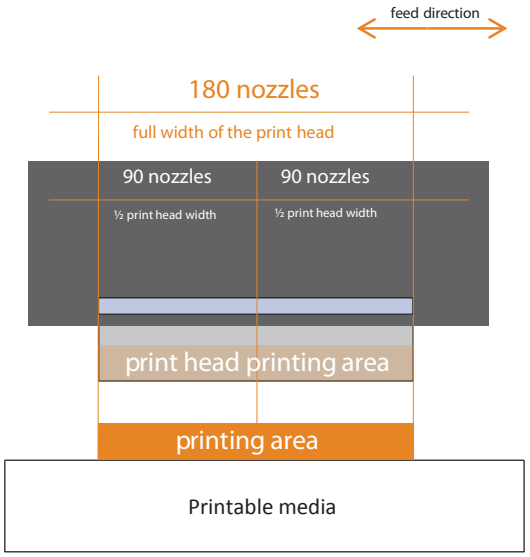
Before printing on bottles, first read the information about splitting nozzles on AZON RIP for better understanding of ROTAX printing.

SPLITTING NOZZLES ON AZON RIP

Azon RIP Software provides option CONFIGURE ROTARY , this option is used to adjust number of nozzles [decrease or increase] used while printing on rotax adapter.

PURPOSE OF SPLITTING:

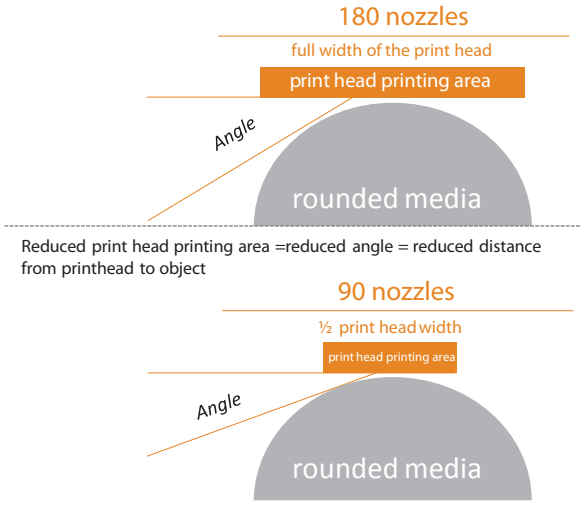
By splitting nozzles on print head printing area is de-creased.



***Number of nozzles are round numbers for easiest explanation**

WHERE TO USE :

This option is used while printing on rotary adapter It will reduce the distance (height) between print head printing area and rounded object.



***Number of nozzles are round numbers for easiest explanation**

Calibration

IMPORTANT TO KNOW:

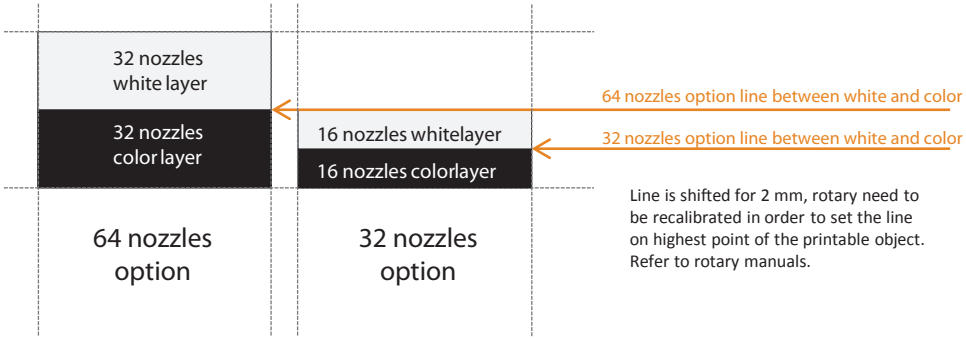
There are recommended settings for printing on Azonprinter Rotary adapter . Those settings are not the only one to use on rotary , Azonprinter cannot guarantee quality results and stability of machine if print settings are changed by user.

HINTS:

Highest point of the printable object need to be set exactly between white and color layer.

Process of the calibration [procedure to determine best possible position for rotary] can be found on next pages.

If number of nozzles is changed , line between white and color layer will be shifted. EXAMPLE on right.



*** Both options 64 nozzles and 32 nozzles will not utilize full width of the head ! [Maximum number per layer is 180 nozzles and minimum is 16 nozzles]**

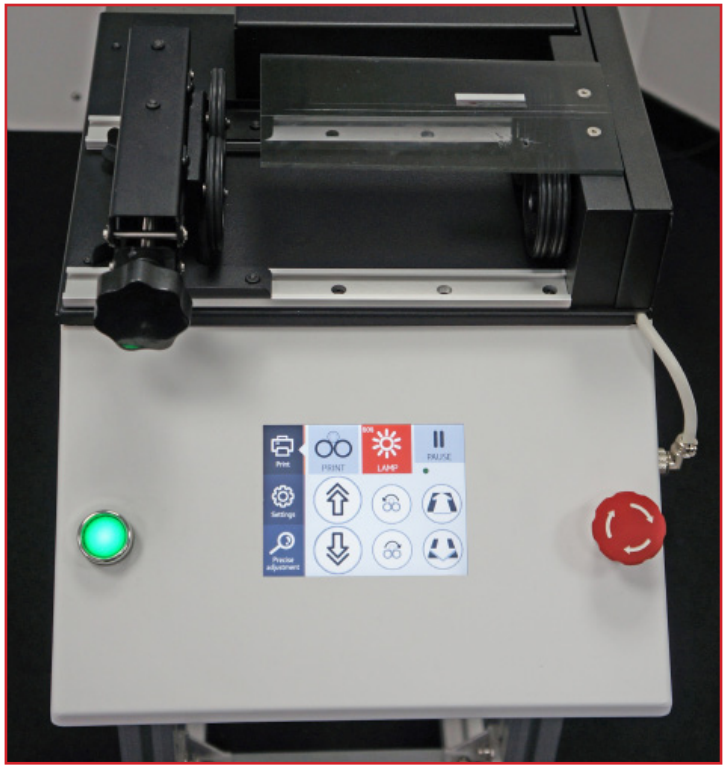
RAZOR is calibrated for 32 nozzles setting for printing on ROTAX.

You need to re calibrate RAZOR when using 64 or 96 nozzles (*180 nozzles are not recommended for ROTAX printing*).

Skip this chapter if you use default 32 nozzles setting.

1) Install the plexiglass on ROTAX.

Put 2 Allen type screws and secure the plexiglass (3 mm Allen type screwdriver required).



ROTAX with properly installed calibration plexiglass.

2) Lover the printer to plexiglass level.

Move sensors in between Plexiglas and lover it. (make sure head sensor is not disabled).

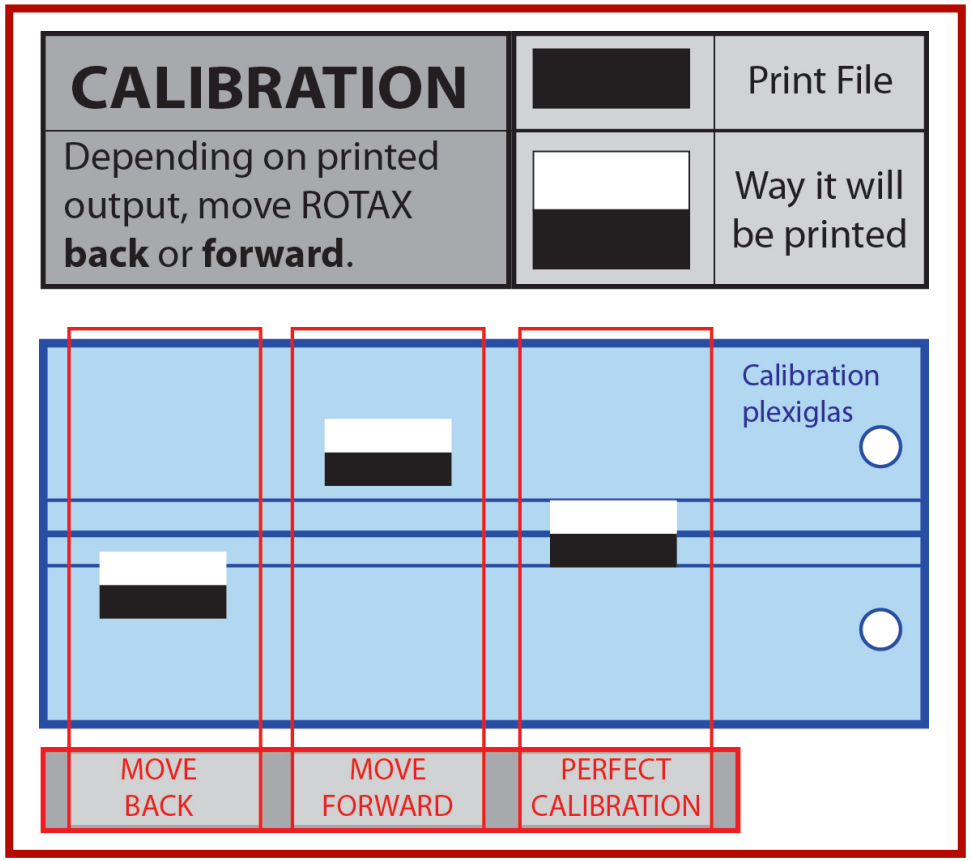
3) Put the printer in ONLINE mode.

4) RIP the “ROTAX calibration” file.

Use desired number of nozzles (*Refer to page 14 for help*).

5) Print the file and calibrate ROTAX. Repeat this process until you get best result.

Depending on location of printed file on calibration plexiglass, move the ROTAX back or forward (examples bellow).



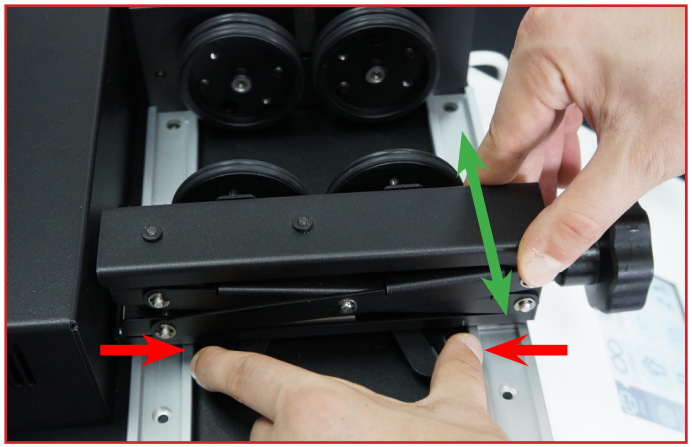
Set-up printing material

Follow the next instructions depending on type of material you are printing on. We have arranged the instructions for:

a) Cylindrical bottle
b) Conical or Cup

a) Printing on Cylindrical bottle

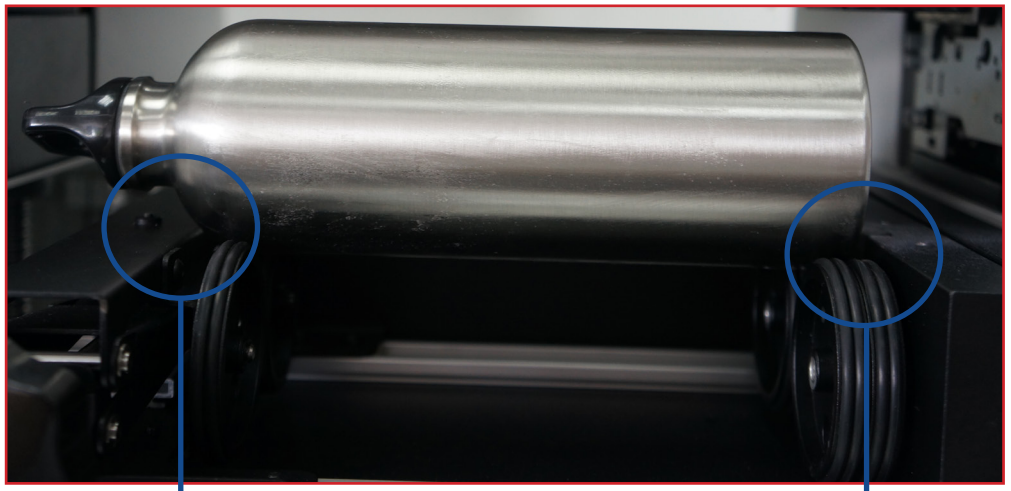
Put the bottle on rotary and **adjust the width** by pressing the lock (red arrow) and moving the platform (green arrow).



Picture 13

Make sure you adjust the width of the rotary in a way that bottle can not fall or oscillate while moving. The mass of the bottle needs to be spread equally across wheels on both sides.

TIP: it is better to pour water in a bottle when printing, because it will be more stabile.

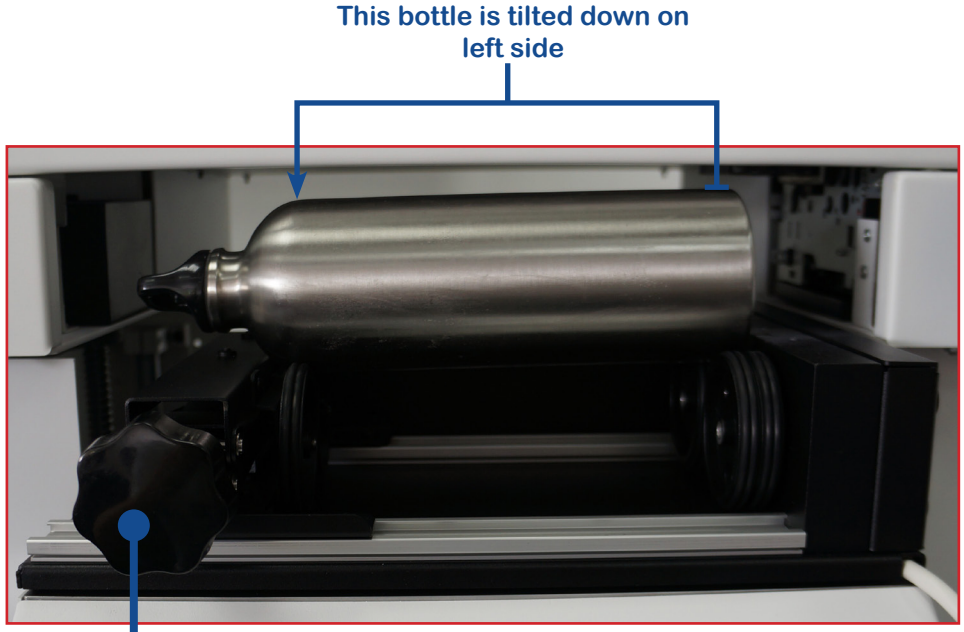


Picture 14

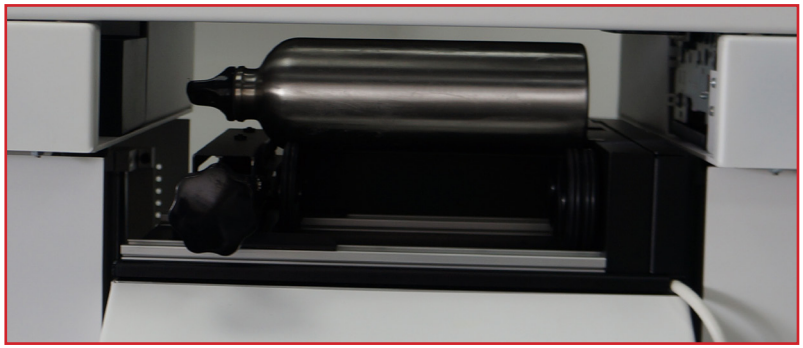
Make sure bottle doesn't touch the platform

Flat side of bottle needs to be on nearest to the stop point

To **level a bottle** on both sides and make sure printing surface is flat and equally far from print head you can use **printer cover**.
Move the printer forward so that cover is above highest part of bottle.



Picture 15

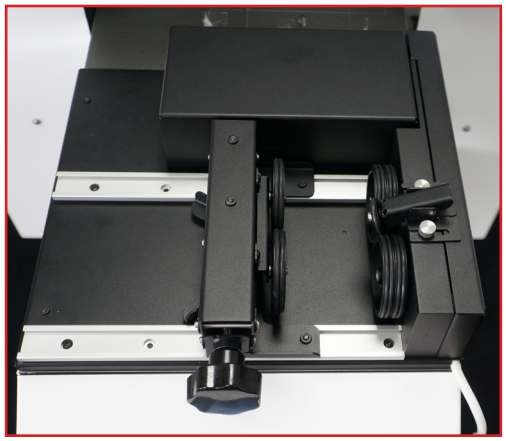


Picture 16

When distance form printhead to bottle is equal across entire bottle surface (picture 16) **adjust the printhead height** (chapter 2.3).

b) Printing on Conical bottle or Cup

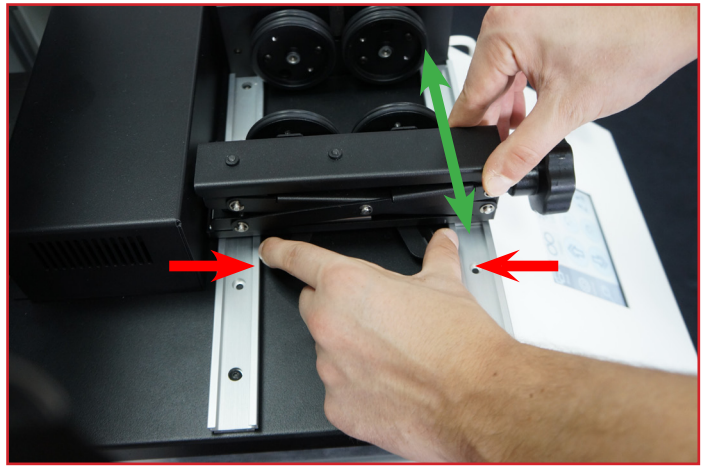
Install the small wheel if you are printing on a **cup**. Wheel is installed on the right side and fixed with 2 thumb screws (pictures 17 and 18)



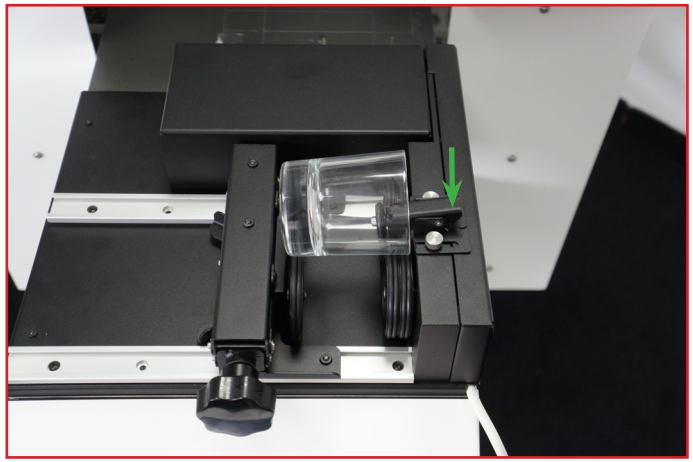
Picture 17

Picture 18

Adjust the Width. Put the cup or bottle on rotary and adjust the width by pressing the lock (red arrow) and moving the platform (green arrow).



Picture 19

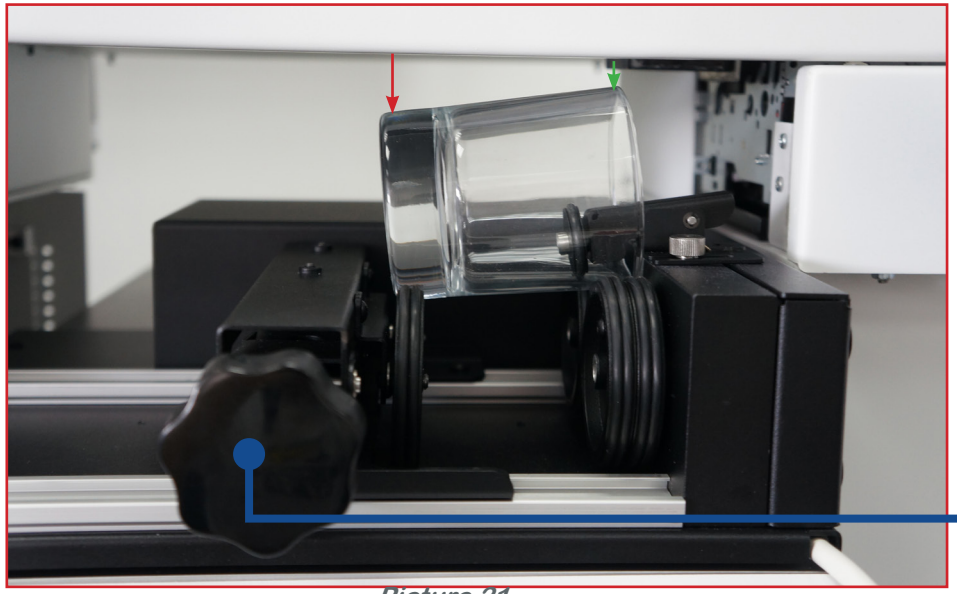


Picture 20

If you are printing on cup, **adjust the cup holder.** Press the cup holder wheel down (green arrow) and wheel will go up. Move the glass right and wheel will be inside of the cup. Now release the holder and it will "lock" the glass.

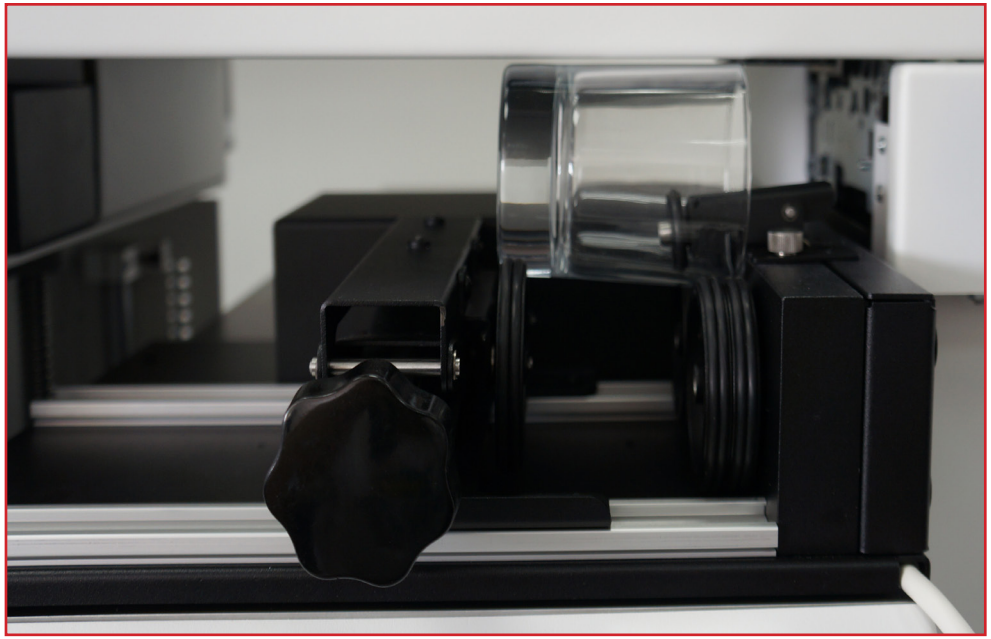
Always place smaller diameter side of object on the left. This is because only on left side of rotary height can be adjusted (picture 21).

To **level a cup** on both sides and make sure printing surface is flat and equally far from printhead you can use printer cover.
Move the printer forward so that cover is above highest part of bottle.
Now adjust the height by rotating the knob (picture 21).



Picture 21

When distance form printhead to object is equal across entire objects surface (picture 22) **adjust the printhead height** (next page).



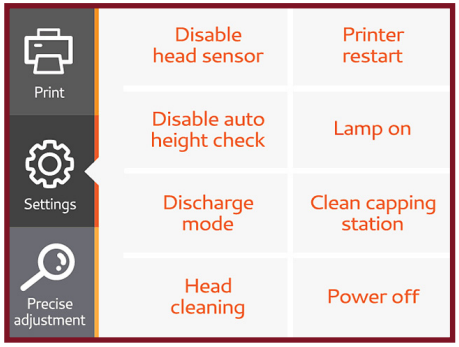
Picture 22

Rotate the knob clockwise to lift up left side.
Rotate the knob counterclockwise to move the left side down

Printhead height adjustment

For best print results it is suggested that distance between Printhead and object is around 2 mm. If distance is more than 3 mm, you will get a blurry print, and if it is lover than 1,5 mm, you can damage the Printhead if it hits the object. This distance can be adjusted **manually** or **automatic**.

Auto height adjustment



1) Check the settings. Automatic height adjustment and head sensor need to be ON (picture right), and printer cover needs to be lifted.

2) Move printer back from rotary.

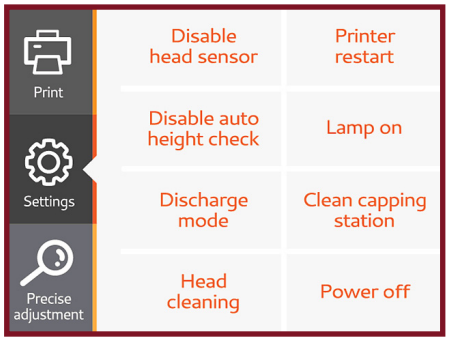
3) Move printer down bellow bottle level.

4) Press Online button. Printer will automatically adjust its height to the highest point of bottle while moving.

CAUTION!

When printing on transparent object such as glass, the laser beam can't penetrate through the object so it won't stop the printer at proper height. To use auto height option with transparent objects we suggest to put some tape on the edge of object so it will stop the laser beam at proper height.

Manual height adjustment.



1) Check the settings. Make sure head sensor is turned ON (picture right).

2) Move printer back from rotary.

3) Move printer up couple cm above bottle.

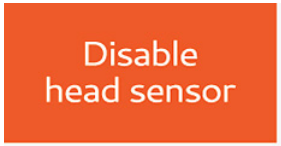
4) Move printer forward, and make sure that highest point of bottle is between sensors.

5) move printer down until bottle breaks the laser beam and stops the printer.

TIP (both cases):

At the beginning of the print, check the distance and level when print starts. Head will move above bottle couple of times before printing begins, and you can still adjust the level and distance if needed.

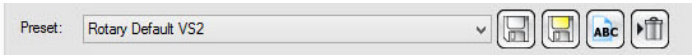
If you need to go lover than sensor is allowing you, disable the sensor and lover the printer carefully, but don't forget to turn it on after the print.



RIP Settings

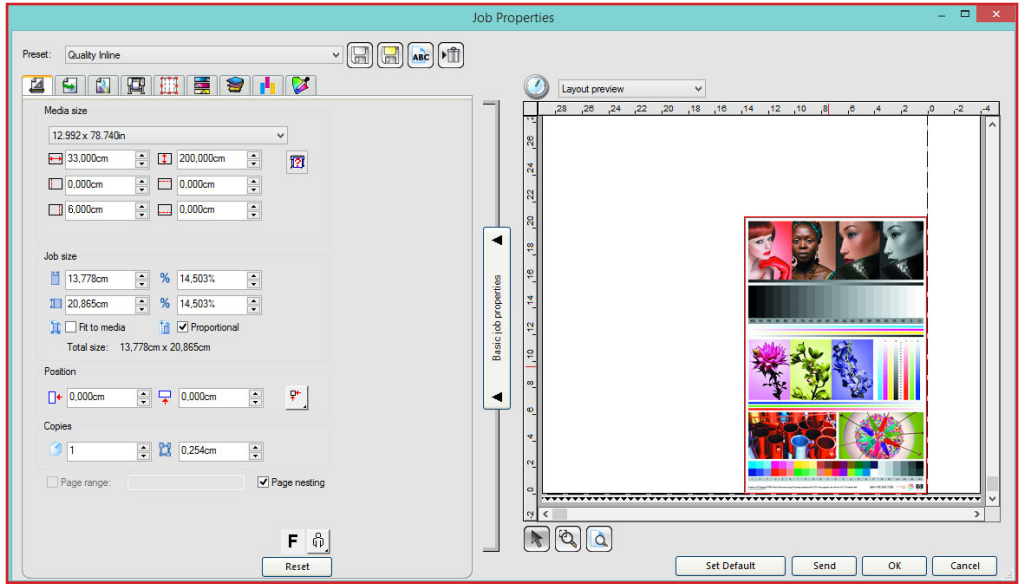
When you RIP files for rotary, there are some important settings in Azon RIP software.

TIP: If you already have preset for Rotary you can select it and use it (picture below).

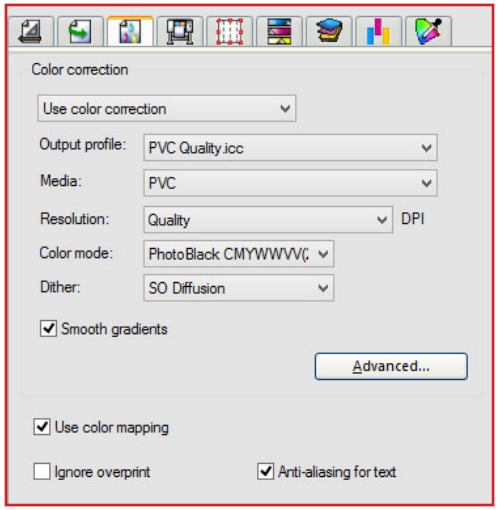


Set the position and size of image. (At the beginning of the print, bottle will be slightly rotated by rotary in clockwise direction, around 1 cm)

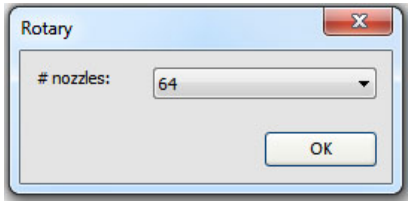
If you start printing from **zero point** (0,0) bottle will rotate for 1 mm clockwise and start printing at the beginning of right sided wheels. Bottle moves clockwise while printing (looking from the right side view perspective).
In our example we moved the starting position 1 cm from the right so the image is not printed exactly at the beginning of the bottle.



Set the resolution and profile.
Select PVC Quality profile for better results.

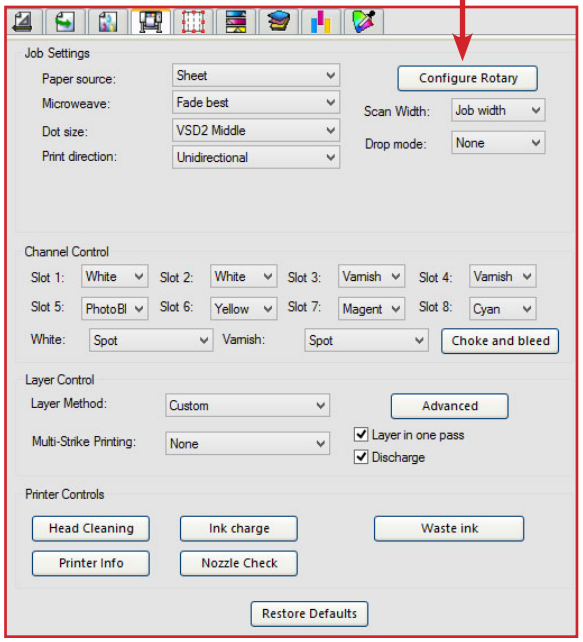


Set the desired number of nozzles ("Configure Rotary" button).
ROTAX is calibrated for 32 nozzles. When printing more than 1 layer (e.g. White + Color) minimum number of nozzles is 64.
You need to re-calibrate the ROTAX if using values different than 32 (page 9).



Set the Printer Options.
Adjust the Layer Method for your print.

Use "VSD2" Dot Size, and Drop mode "None.
"Discharge" and "Leyer in one pass" always need to be ON.



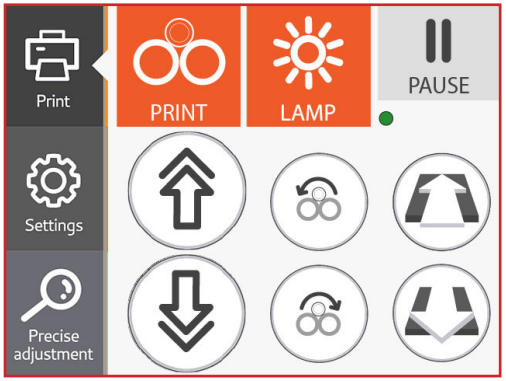
Leave all other settings as for regular print, or adjust them for your needs

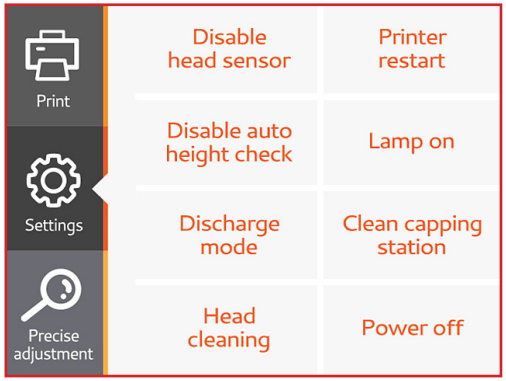
TIP:

When creating the file in graphical program for cylindrical object, you need to create image with cylindrical surface (rectangle). For conical object you need to create trapezoid image, because rectangle will look distorted on conical object due to different diameters across object.

After you RIP the image, check the printer again before you start printing. Make sure that:

-Bottle position and Printer height is adjusted as shown in previous chapters.
-Online mode is ON and printer is Ready
-Lamp is turned ON (and adjusted for corresponding material)
-Discharge mode is turned OFF
-Top Cover lowered (for UV light protection)



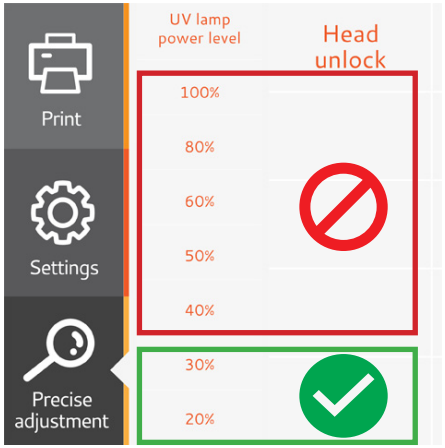


IMPORTANT NOTICES

Printing on CUPS with HANDLE

We don't recommend to print on objects with handle because ther is no sensor for detecting handle. If you intend to print on this type of objects you are doing it on your own risk.

UV Light INTENSITY



When setting up UV Light intensity, don't go over 30%.

Printing on ROTAX using intensity higher than 30 % you risk the Printhead clogging.

Removal

When you want to remove Rotary, disconnect the cable (unscrew the nut first) and screen bellow will appear.

Press the screen and you will be back in normal mode.

Now remove the Rotary and put the protection nut on connector. You can safely lover the Printer corresponding to requirements of your next print.