

Urgency	Classification	Scope
Immediately	Mandatory	Application

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1. Introduction

This document will assist you:

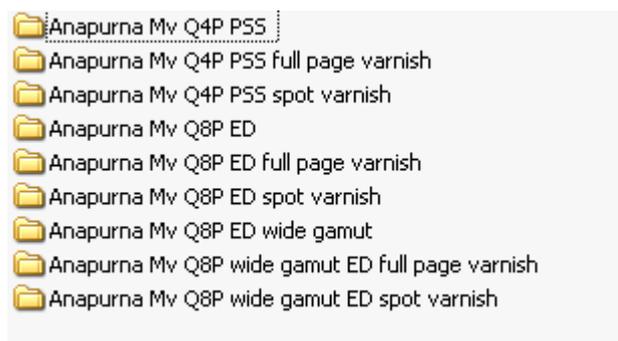
- a. In making the right choices when printing varnish on the :Anapurna Mv engine.
- b. The different options of the Wasatch SoftRIP will be explained in order to achieve the desired result.
- c. Setup for the AgfaRIP2000 application will be covered.
- d. Anapurna Mv related settings & some tips for printing.
- e. Example files

2. Wasatch

Anapurna engines are delivered with the Wasatch SoftRIP. This software will process the jobs and generate RTL-files (format recognized by the engine). Different parameters like print quality, color management are stored in so-called imaging configurations (generally referred to as profiles). Once the RTL files are generated they are stored locally on your hard disk and you will need to use the AgfaRIP2000 utility to spool them to the Mv (see section 3 or section 6)

2.1 Agfa supplied imaging configurations

Agfa supplies a set of ready-to-use imaging configurations; these are:



>>> **PSS** stands for Precision Stochastic Screening. This is a tile based screening algorithm within Wasatch. Its main advantage is the very short rendering time compared to error diffused screening. Because of the tile based concept however you are more likely to start seeing printing artefacts like patterning in Q8 pass mode. PSS works fine for Q4P mode.

>>> **ED** stands for Error Diffused screening. This is the screening of choice when printing 8 pass. Here every single dot has to be calculated resulting in longer rip times (up to 3 times as long compared to PSS) but because of the random dot generation your prints will look smoother and you are reducing the risk of getting patterns.

2.2 Printer Properties Window

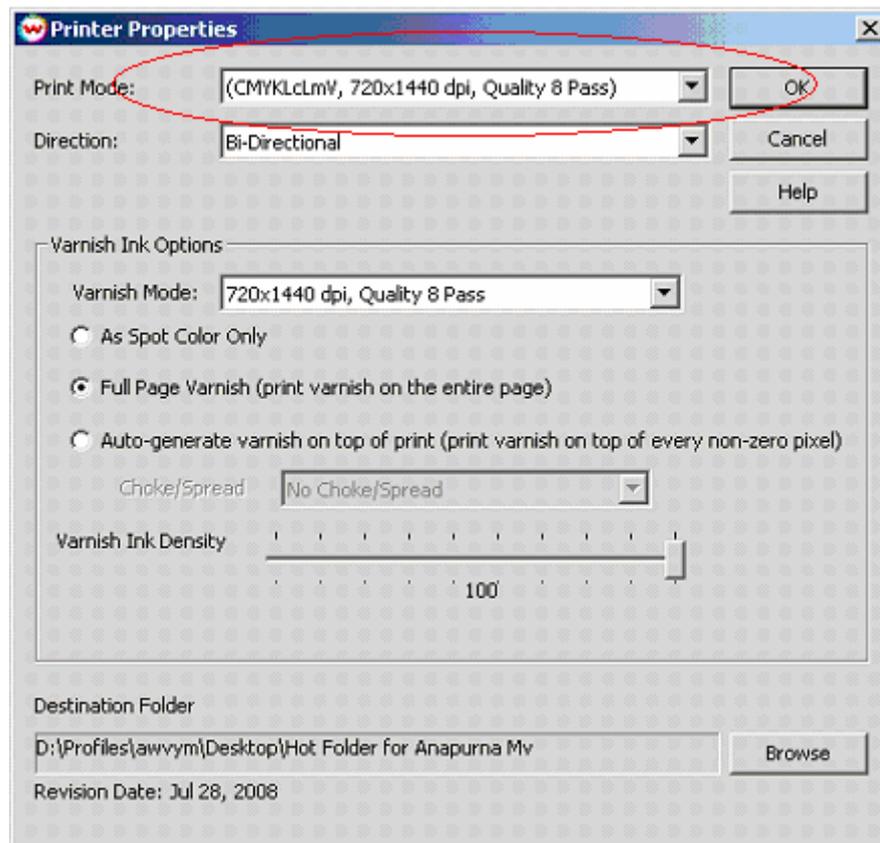
The :Anapurna Mv can be operated in 2 different print modes:

- 6 color only
- 6 color plus varnish

You will find 3 different settings for varnish printing in the 'Printer Properties' window. You can access this window by choosing Setup; select an imaging configuration, click edit and then the properties button.

As you can see in the figure below, you can choose between the following Print Modes:

- CMYK = 4 color driver (only to be used during initial calibration of new media)
- CMYKLcLm = 6 color driver for both 720x720 and 720x1440
- CMYKLcLmV = 6 color driver plus varnish for both 720x720 and 720x1440



If you decide to stick to the default Agfa supplied imaging configurations (mentioned before in section 2.1), you don't need to worry too much about these settings since they have been preconfigured. Also the jetted amount of varnish ink is carefully selected by our application team based on extensive testing.

The varnish layer is always printed at 720x720 dpi (Quality 4 Pass)

When you decide to start using varnish you have a number of Varnish Ink Options available:

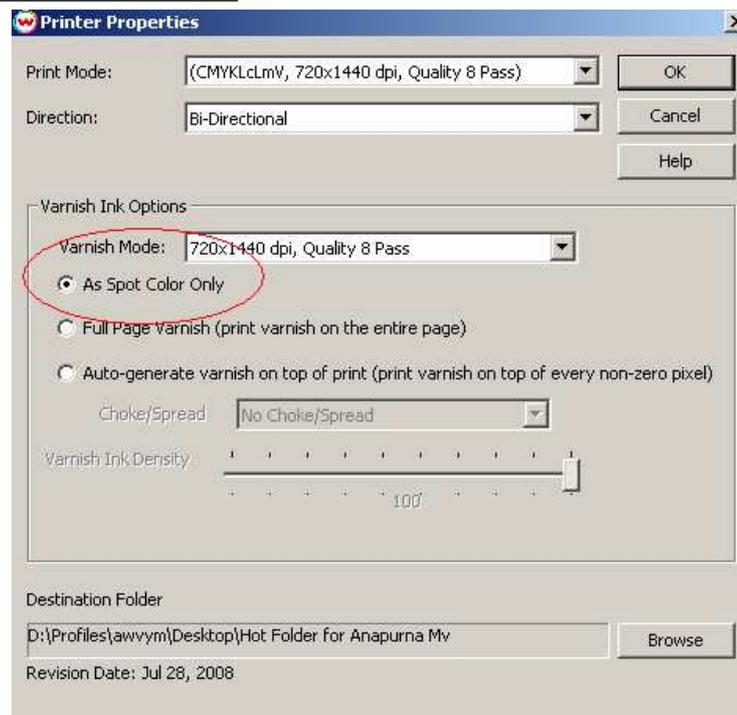
- a. Varnish as Spot Color Only
- b. Full Page Varnish (Prints Varnish on the entire page)
- c. Auto Generate Varnish on top of print

The two most commonly used modes will be:

Full Page Varnish: You can either choose for an auto-generating varnish option and the SoftRIP will create a varnish layer automatically – OR -

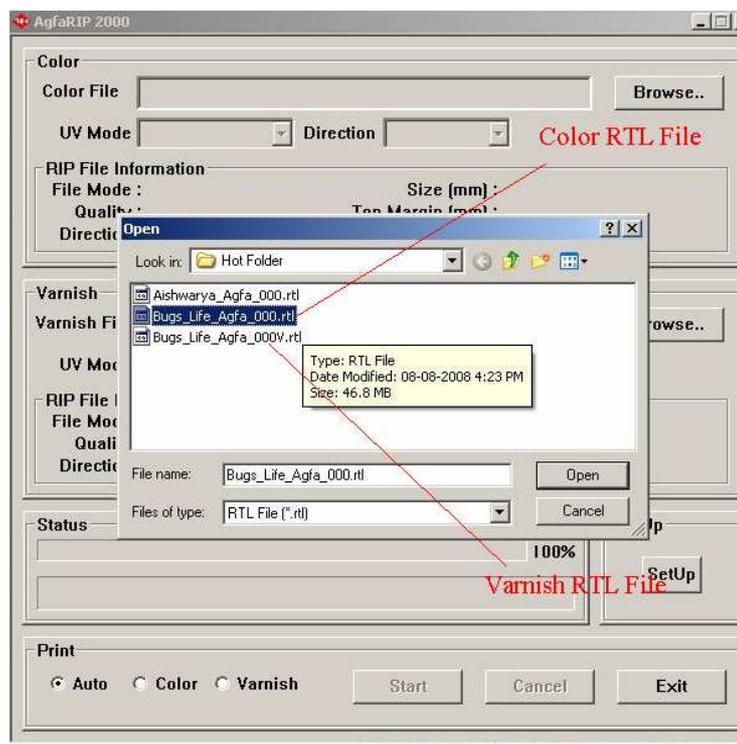
Spot Varnish: You can determine the content of the varnish layer yourself by defining an alpha channel using Adobe Photoshop (see section 4)

2.3 Printing Varnish as Spot Color



This can be used if you want to print a spot varnish layer. This means you will only cover certain areas of your output file with varnish. Since Wasatch does not know which areas to cover with varnish, this needs to be pre-defined by means of embedded alpha channel information in the incoming .tif or .psd files (Wasatch only recognizes alpha channel information in tif and psd file formats)

In section 4, we will briefly explain how to create an alpha channel using Adobe Photoshop™. With the "As Spot Color Only" checked, Wasatch will generate two rtl files: one colour rtl file (containing the six channel color information) and one varnish rtl file. This file has the exact same naming convention as the color file but has an extra "V" added in the name.

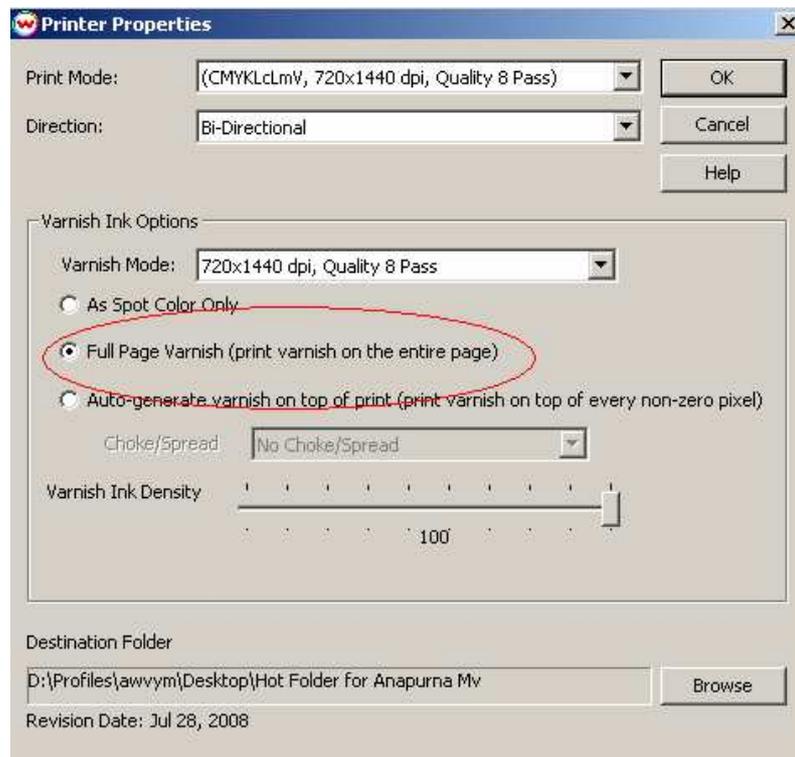


Now you will need to use the AgfaRIP2000 application to send both files to the :Anapurna Mv in an orderly matter. See section 3 for detailed info on how to proceed with AgfaRip 2000.

2.4 Full Page Varnish

Wasatch will automatically generate a full page varnish layer regardless of the image content; the entire bounding box area will be covered with varnish. In case you print a circle, the surrounding square bounding box will be printed with varnish as well.

If, on the other hand, you place two images next to each other in the layout window for e.g. dual board printing, the Wasatch SoftRIP will generate a varnish selection which covers the entire layout area. Be aware that in this case the :Anapurna Mv engine will also print varnish between the two images, probably onto your conveyor belt. So don't forget to mask the area of your conveyor belt between the two substrates.



2.5 Auto Generate Varnish

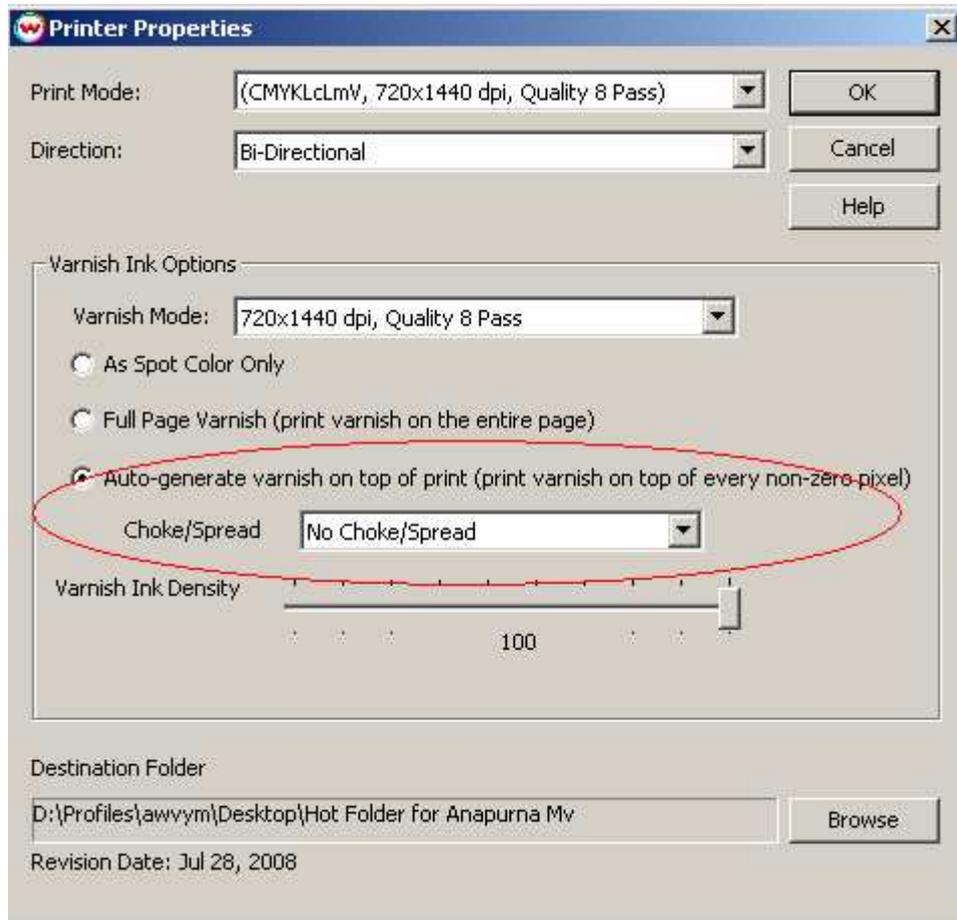
By selecting this option, Wasatch will automatically print varnish on top of every non-zero pixel (Varnish pixels will be generated on top of every colour pixel). Areas that are defined as white (cmyk: 0,0,0,0), will be left transparent.

When you select this option, the drop down menu of the Choke / Spread option will be enabled. Choke / Spread allow you to control how the varnish is laid down around the edges of an image. The choke option will shrink the varnish selection in order for the varnish layer to exactly match the printed contour.

If you've printed your image with the "no choke/spread" option and there is a little transparent varnish border sticking out of your image, you can adjust this by using the choke option. Choke 'erodes' the varnish from the edges.

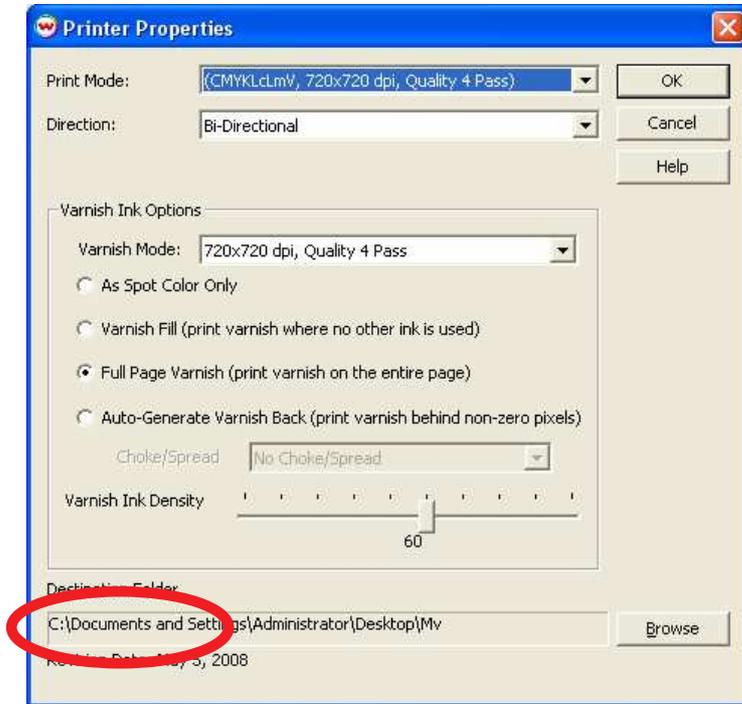
Selecting the spread option, will result in a growth of the varnish separation until a transparent border starts to appear around the edges.

You can choose between different intensities for the choke or spread option (small, medium or large).



3.0 Using the AgfaRIP2000 utility

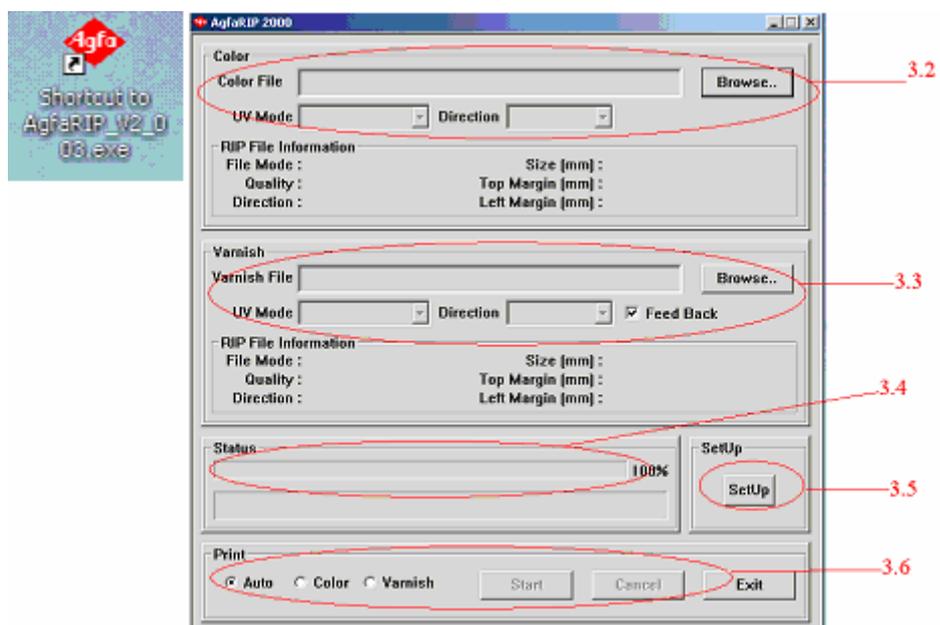
Wasatch SoftRIP cannot print directly to the :Anapurna Mv. It creates one or two .rtl files (depending on the print mode selected). These files are stored on the Rip Station (PC). The location can be specified by going to the 'Printer Properties' and storing them on your local hard disk. (By clicking on Browse and selecting a desired destination folder)



AgfaRIP2000 utility is used to send the rtl data over to the :Anapurna Mv.

3.1 Installation

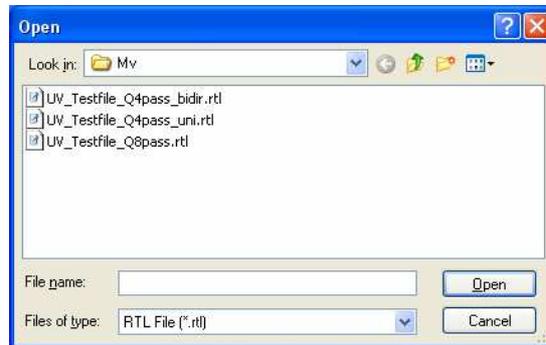
The installation of AgfaRip 2000 is independent of Wasatch. This will be installed by the Agfa service engineer & a back up copy left on the desktop. Double Click on AgfaRIP_v2_003.exe icon present on the desktop, this will launch the AgfaRip 2000 utility (which will look like as below):



Let's discuss few 'buttons' present in this utility:

3.2 Color Pane

Enables you to browse to the destination folder and open the rtl data file. Also a low res preview will be opened for verification.



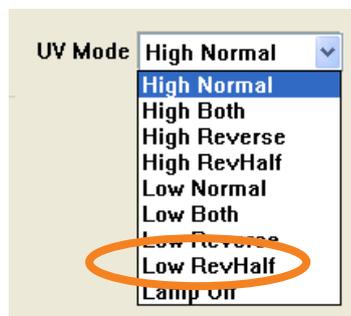
Second step is to decide on UV lamp mode; there are a number of options available. This setting will have priority over the Full Power position (mandatory) of the UV lamp switches.

We can also decide between Bi or Uni direction, this will override the Wasatch presets.

3.3 Varnish Pane

The varnish pane enables you to select the corresponding rtl varnish data file. You can recognize this file very easily by means of the added "V" in the naming convention. The file has exactly the same name as the color file it refers to (eg testfile.rtl and testfileV.rtl)

The lamp mode can be selected for Varnish; this should be set to 'Low RevHalf' for all varnish prints for optimized curing (as default). Curing in a high UV mode will introduce visible banding into the varnishing layer.



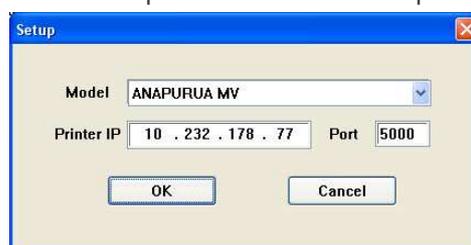
'Direction' should be set to bidirectional. Settings on AgfaRip2000 will override the presets of Wasatch & Anapurna engine.

3.4 Status Pane

Shows the progress of the actual rtl data spooling to the :Anapurna Mv

3.5 Setup

Enables you to enter the IP address and port number of the Anapurna Mv. (Port should be 5000)



3.6 Print Pane

Here you will have to check one out of three available options:

'Auto', 'Color' or 'Varnish'

Hitting the print button will start the print sequence which will differ based on the choice you make (between Auto, Color or Varnish)

'AUTO' means the :Anapurna Mv will first print and cure the color file. Upon finishing, the lamp housing will slide to the front, the media will be retracted and the varnish file will automatically be printed. This all takes place in one smooth automated cycle.

*** When printing on the rigid media (with Null Point as 'Y' in the Parameters), after finishing the color job, the engine will go OFFLINE and ONLINE LED will start flashing informing you that the Varnish print is ready to be printed. Press ONLINE button and the media will retract to print varnish.

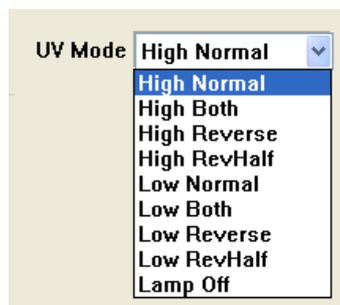
'VARNISH' means only the varnish file will be printed

'COLOR' means only the color file will be printed

3.7 UV Lamp Modes in AgfaRip 2000

When sending a rendered rtl color or varnish file over to the :Anapurna Mv you have to select the correct UV mode in the AgfaRIP2000 utility. Following options are available:

1. High (Normal, Both, Reverse, Rev Half)
2. Low (Normal, Both, Reverse, Rev Half)
3. Lamp Off



Power

High = Full Power (100%)

Low = Half Power (50%)

Mode

Normal = Shutters of the trailing lamp will open

Both = Shutters of both lamps will open

Reverse = Shutters of the leading lamp will open

RevHalf = The number of curing cycles is half the number of printing passes (the shutters will only open every two printed passes, in this case the shutters of the leading lamp)

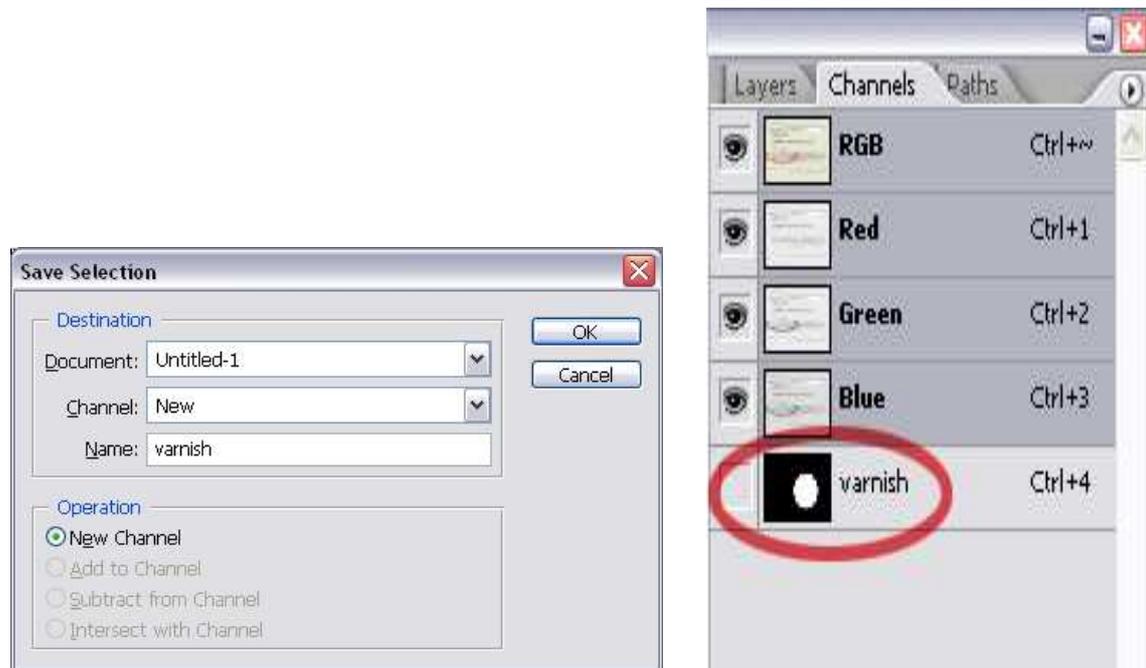
These settings always override the UV lamp button setting on the :Anapurna Mv, therefore, always have the lamps to Full Power selection at the Anapurna Mv Control Panel

Selecting the UV mode for Color depends on the media & print mode; for the Varnish, the best mode is 'Low RevHalf'.

4.0 Creating an Image with Spot Varnish Layer (in Photoshop)

If you want to print varnish using 'Spot Varnish' option, your image data has to contain an extra alpha channel with the varnish separation information.

The easiest way to achieve this is to create a selection in Adobe Photoshop which reflects the varnish areas in your image file. Save the selection and in the 'Channels tab' an extra alpha channel will appear.



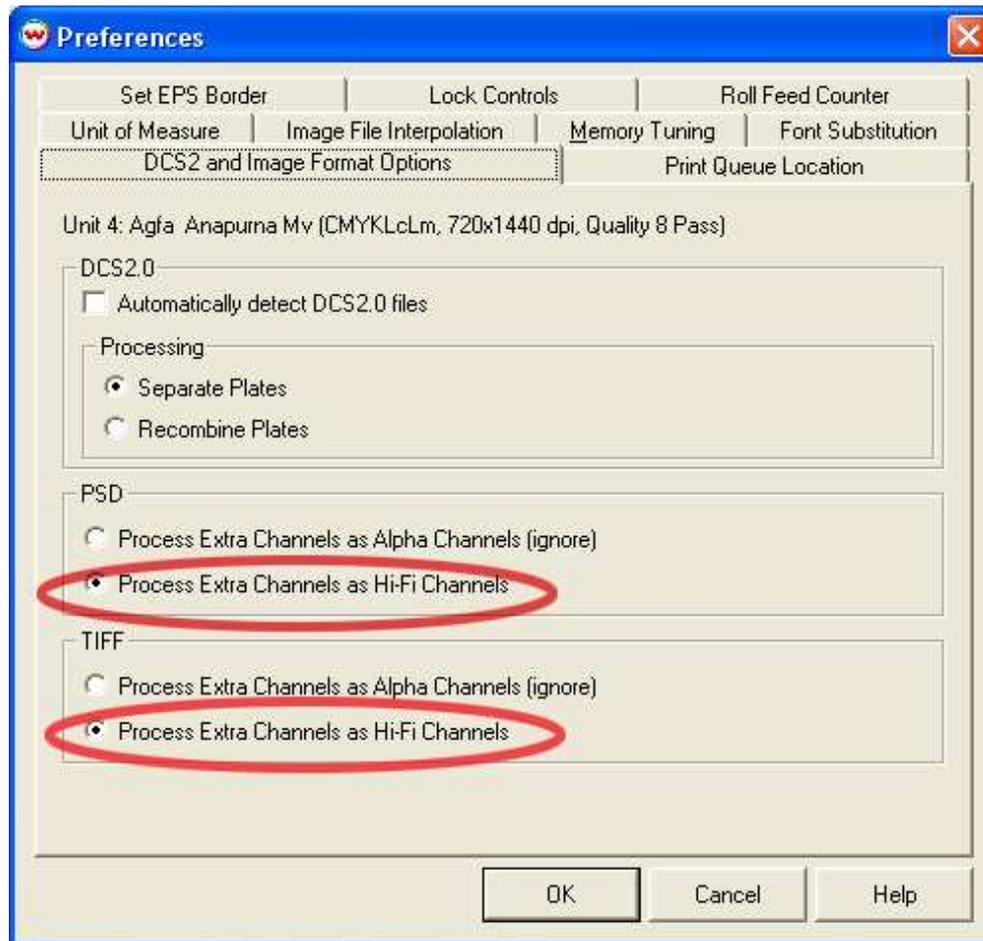
Save your file as a .tiff file including the freshly created alpha channel



5.0 Wasatch Settings

In order for Wasatch to recognize the extra alpha channel, you need to activate one option in the preferences dialog window. The alpha channel information will be rendered and output as a complementary varnish rtl file.

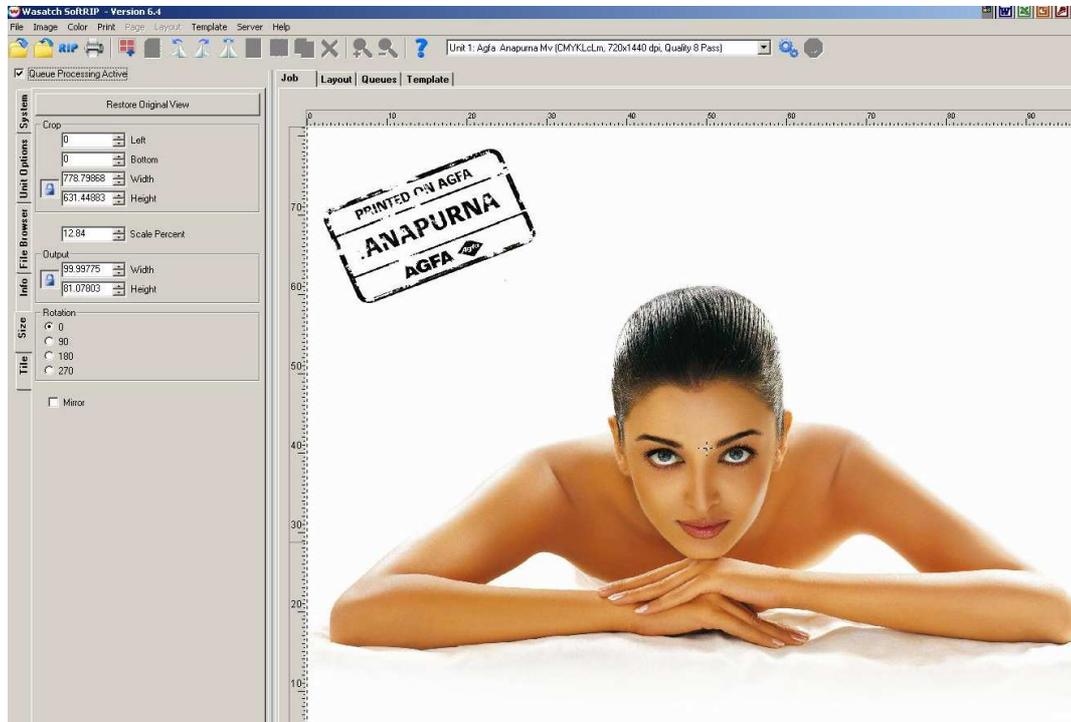
- This is for printing Spot Color
- The supported file formats are .tif and .psd
- The file should be a CMYK (not RGB)



6.0 Examples

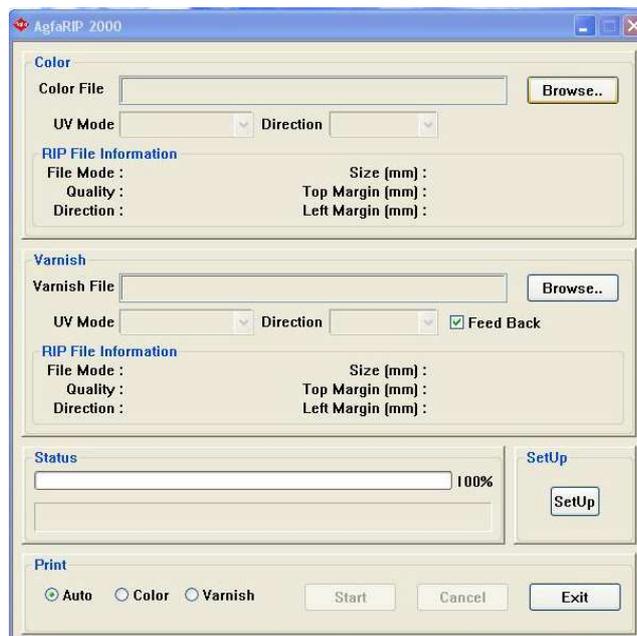
The following examples will help beginners to work with Wasatch & AgfaRip 2000 while printing with or without varnish.

6.1 Printing without Varnish

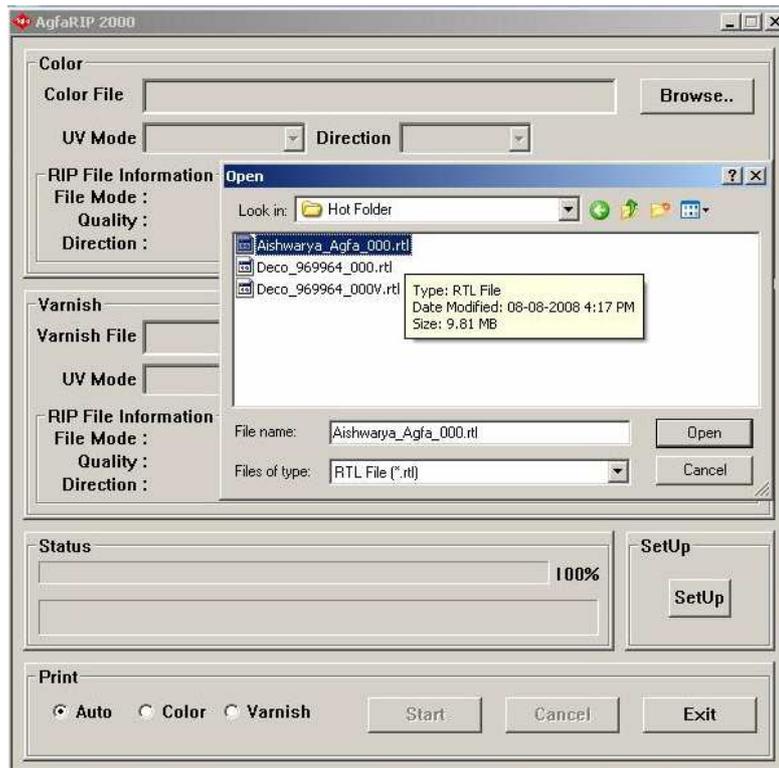


Use the Wasatch Rip to open, re-size & 'rip & print' the job. The job is sent to a pre-defined 'Hot Folder' on the Rip Station. The access to the hot folder (or the ripped file) is through the AgfaRip 2000.

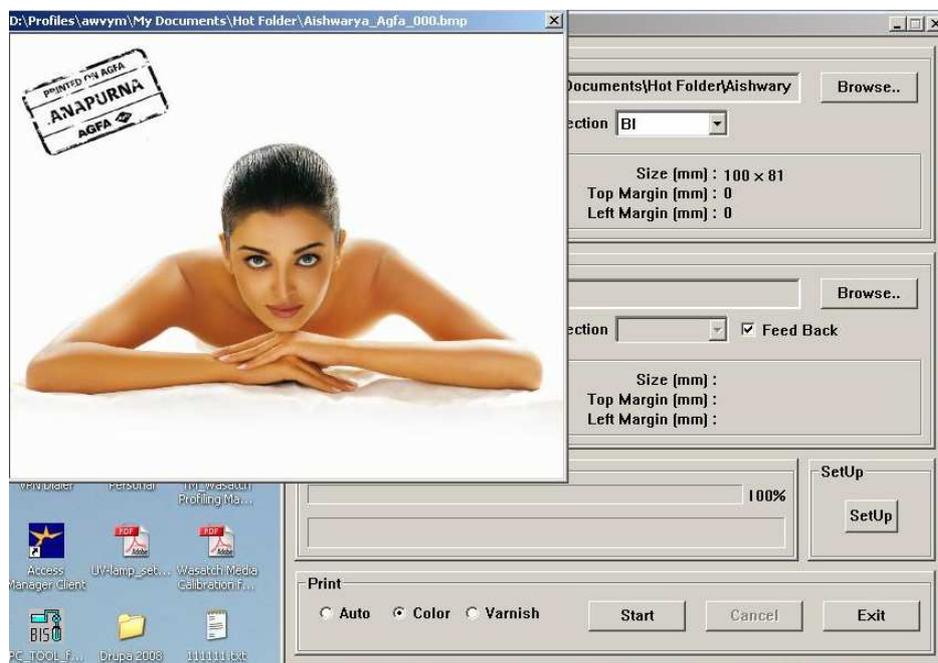
Double Click on the AgfaRip 2000 icon placed on the desktop; the following window will open up:



Click on Browse and open the .rtl file from the pre-defined Hot Folder; as the said file was to be printed as a 'color' job only (no varnish); you will have only one rtl file related to this job.



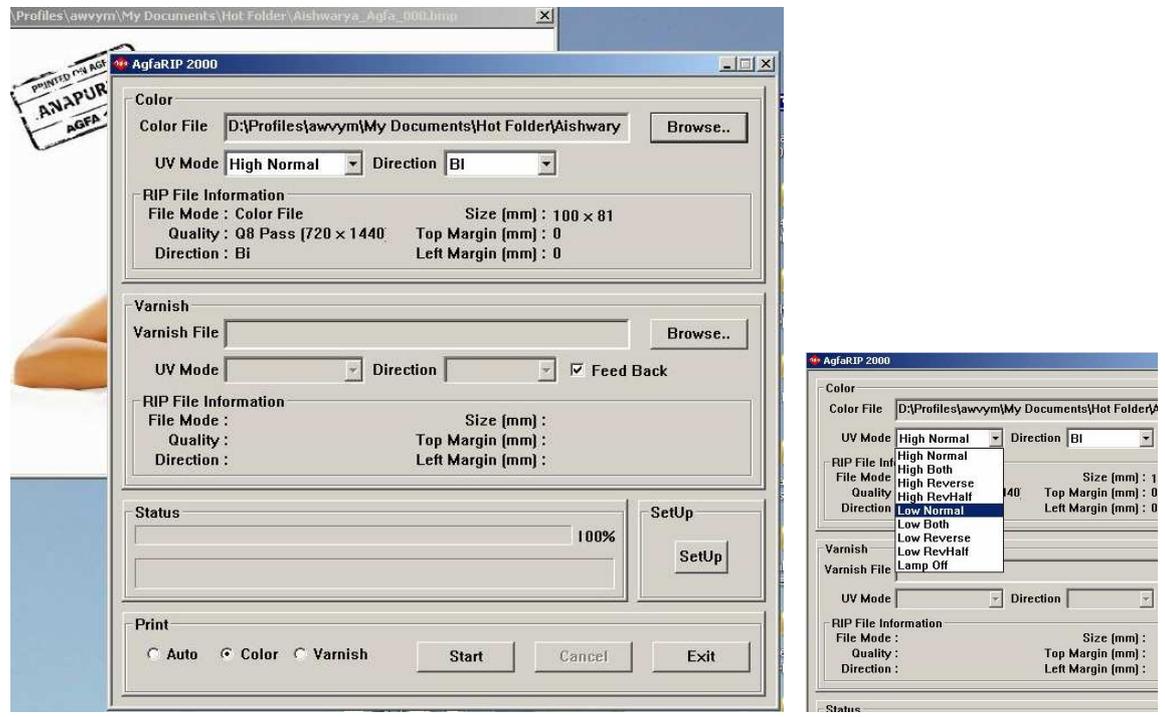
The moment you select the file and click on Open (or double click on the file), a preview of the same image will pop up (informing you that the file has been selected)



Go back to the AgfaRip 2000 window; this gives you information on the rip file, print mode and if the file is with the varnish option or not (selected from the imaging configuration).

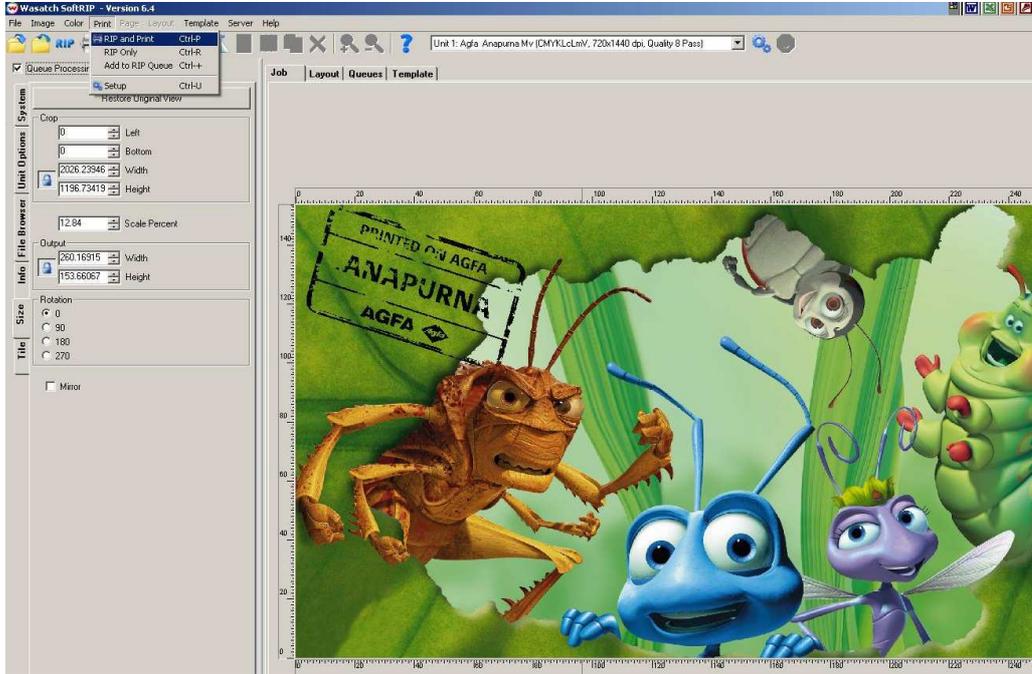
As you can see below, the said file has no varnish option selected (this was a normal color job). Other important variables include settings the lamps to the required power and mode. (We have

discussed the different UV lamp mode options on page # 8). These settings will override the lamp settings on the engine; therefore always switch the lamps to Full Power at the engine. Press Start and the job will be sent to the Anapurna Mv engine for printing. If the engine was 'Online', the lamps will come on, wait for 90 seconds to warm up and start printing.

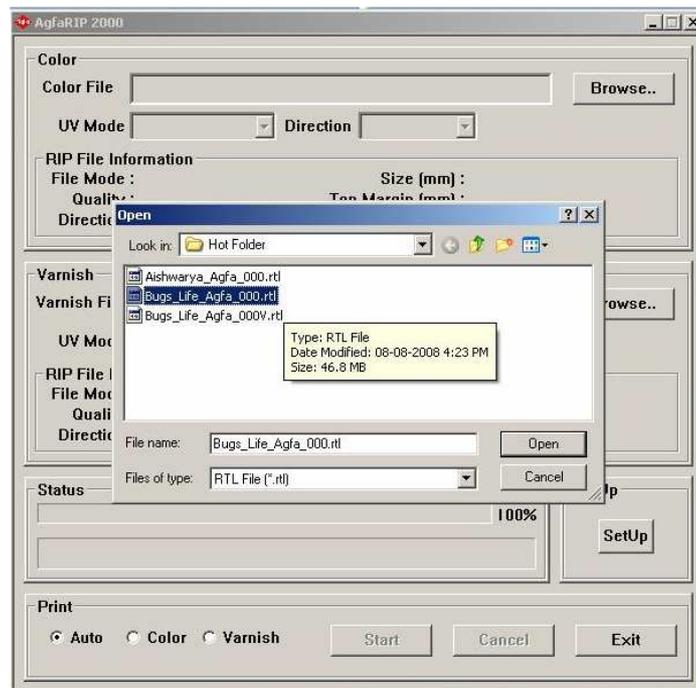


6.2 Printing with Varnish

Use the Wasatch Rip to open, re-size & 'rip & print' the job. The job is sent to a pre-defined 'Hot Folder' on the Rip Station. The access to the hot folder (or the ripped file) is through the AgfaRip 2000.



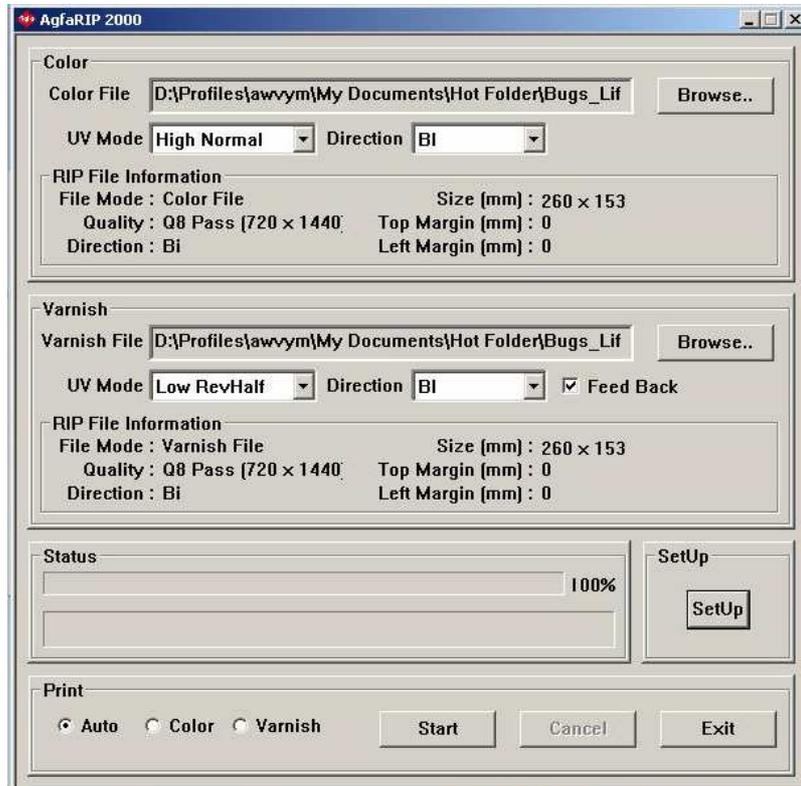
Double Click on the AgfaRip 2000 icon placed on the desktop and click on Browse to open the file required to be printed. In this case, you will get 2 ripped files with the same initial name but ending with .rtl & V.rtl (the V.rtl is the varnish part of the ripped file). You need to select the .rtl file always, the attached varnish options will be automatically selected.



After you have selected the file, the varnish file will be selected automatically; the print mode will be checked as AUTO. You need to select the UV mode in the Varnish window as 'Low RevHalf'. This

is a default setting and produces the best result with the varnish. (We have explained the different UV mode on page # 8)

Press Start and if the engine was ONLINE and ready to print (with lamps warmed up), the file will start printing. At the end of the color print, the media will rewind back and lay out the varnish.



7.0 Anapurna Mv specific settings

7.1 Temperature settings

Sub Ink Tank 1: This is the sub ink tank temperature for the colors and needs to be at 45 °C

Sub Ink Tank 2: This is the sub ink tank temperature for the varnish, needs to be set to 40 °C

Head Base Temperature: Needs to be set to 43 °C

7.2 Shuttle speed

The shuttle speed for the :Anapurna Mv needs to be set to 7 to achieve the best print result

7.3 Lamps

Keep the lamps to Full Power on the Anapurna Engine. Specific settings for each job need to be defined from AgfaRip2000.

7.4 Host or Local

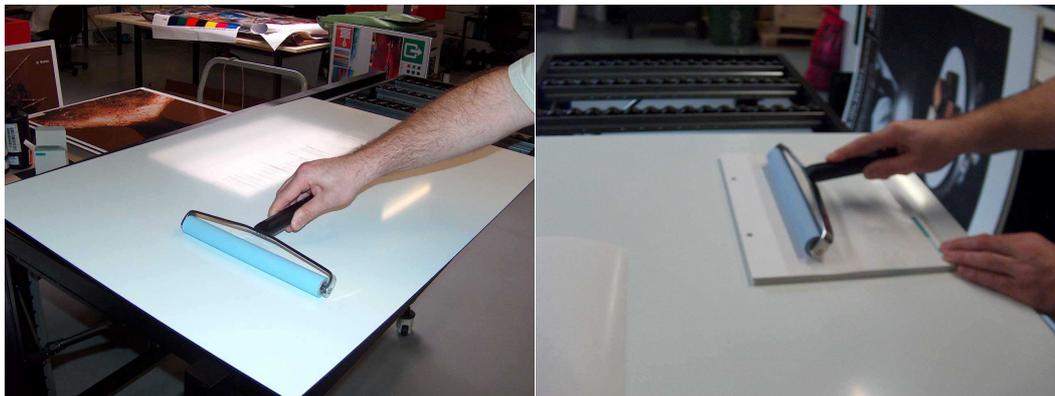
The :Anapurna Mv always needs to be set to HOST (in Parameters)

7.5 Use of Varnish

- Varnish can be used as “image protector” or as “image refinement” tool.
- Image permanence tests such as “adhesion/abrasion resistance/chemical resistance/outdoor durability” are planned. Results expected later this year.

7.6 Dust

- Dust is the main enemy when printing varnish
- All dust particles need to be removed before printing color (on the unprinted substrate); this can be done by using the “clean roller” system (roll and sticky paper)



7.7 Substrate Compatibility

- The overall Image Quality of varnish is media dependent.
- Even though varnish is done on top of the color pixels, you can observe difference in varnish quality depending on the surface tension of the substrate.
- Special attention when printing on flexible substrates. There is no rewinding system on the Anapurna Mv. Once the color file is printed, media will be automatically retracted; this can result in media touching the floor (dirty prints resulting in poor varnish quality). This can be prevented by having the flexible substrate on top of the rigid media table.

7.8 Registration: Varnish vs. Color

- Registration within 1mm
- Before varnish gets printed, the system will automatically retract substrate (after printing the color file. It should not be a surprise that perfect registration could be an issue when printing files that are longer than 1.5 m

7.9 ICC Profiling

- New configurations made, please don't change anything
- Varnish always printed in 4pass printing mode with a fixed ink limitation of 80%

7.10 Ink usage

- Ink usage on color is the same as the one on the Anapurna M (between 7 - 22 ml/m²)
- Varnish usage approx: 30ml/m² at full coverage

7.11 Printing speeds

- Printing varnish will reduce the printing speeds)
- Reducing the printing speed to 50% when printing 4pass – 6m² instead of 12m²
- Reducing the printing speed to 75% when printing 8pass – 4.5m² instead of 6m²

7.12 Maintenance

- Make sure to keep varnish nozzles free of clogging (refer to Operator Manual)
- Nozzle failure check easily done on micro porous film (Prime Test for Varnish)

7.13 Multiple Images

- Varnish option is not available for Manual Layouts
- If you try to rip and print, you will get an Error Message when the file is being sent for printing to the folder