OMNI DTF

User Manual

OmniPrint® International

Simplicity. Profitability.

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Printer Package Contents

Your OmniDTF printer includes a set of hardware, software, tools, and supplies for printing & maintenance. Your OmniPrint *DTF Hardware Assembly Manual* lists all the major assemblies. Details of the printing & maintenance supplies are listed below.

Please check these lists to confirm that you've received everything and reach out to your sales representative or the OmniPrint Order Desk if anything is missing.

If you need the *DTF Hardware Assembly Manual,* it can be viewed at or downloaded from http://kb.omniprintonline.com/kb/omnidtf-hardware-setup-manual/

Printing & Maintenance Supplies

- Gamut Plus Hybrid Starter Ink Set
    - White ink – 500mL
    - Cyan, magenta, yellow, and black ink – 250mL of each color
- DTF Powder
- Super Cleaner
- Super Nozzle Cleaner
- Blue grease
- Foam cleaning swabs
- Squeeze bottle

Equipment and Environment Requirements

Supporting Equipment

- Two 120V AC power circuits with 3-prong grounded outlets (OmniDTF printer & Dust-Curing Machine on separate circuits)
- Surge Protectors for both devices (minimum 3800 joules)
- Intel/AMD-based Windows PC running Windows 10 or Windows 11 (no ARM/RISC CPUs)
    - See more detailed *PC Recommendations* below
- Heat press (if transferring prints to garments)
- Air purifier (recommended for indoor use if no ducting to outdoor vent)

Environment Requirements

It is important to maintain climate control in the printer's environment for inks to flow properly and be reliable throughout their expected one-year service and shelf -life.

- **Ambient temperature:** 60° to 80° Fahrenheit
- **Relative humidity:** 45% to 65%
- **DTF Powder Requirements:** Keep sealed in a cool and dry environment.

PC Recommendations

- **Processor:** Requires a PC based on Intel i5 or i7 quad core (3.3 GHz) or higher processor
- **Operating System:** Microsoft Windows 10 64-bit or later
- **RAM:** 6GB DDR3 or more.
- **Hard Disk:** Hard Drive with SATA interface and 1 TB free disk space. Solid state drives are recommended for better performance.
- **Monitor:** SVGA or better with resolution of 1280 x 1024 or better. 32 bits or more color support recommended.
- Interfaces:
    - Ethernet and '2' USB

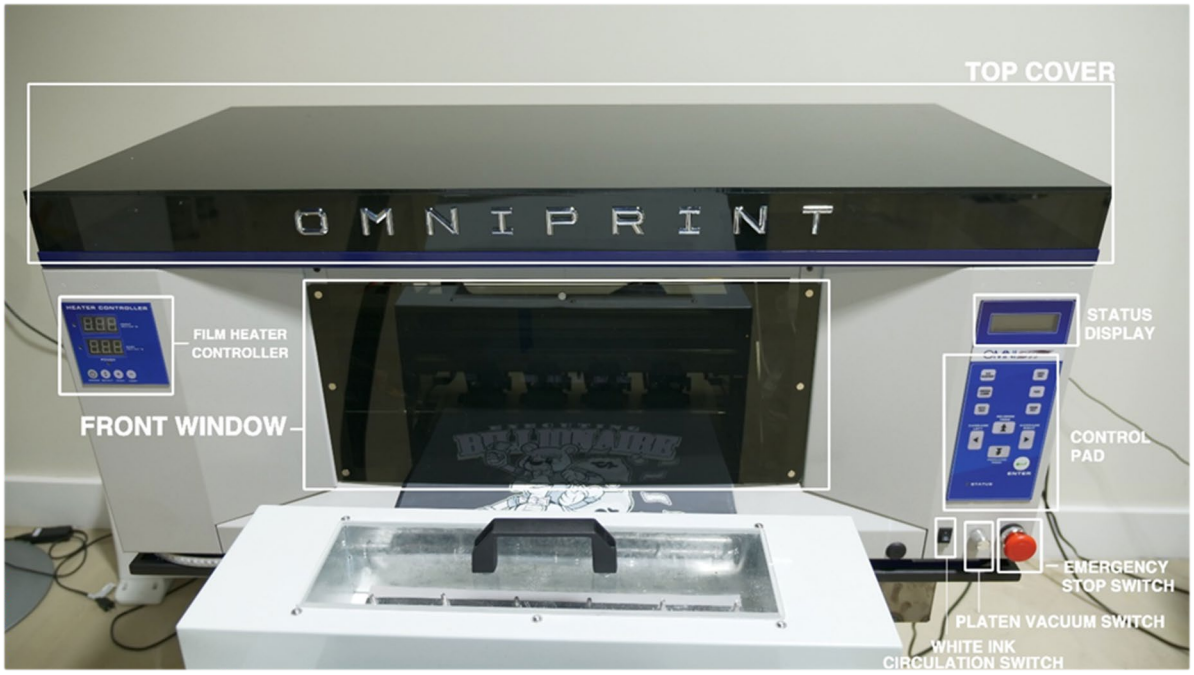
      - or –

      '1' USB 3.0 or USB-C (USB-to-Ethernet adapter included) and '2' USB

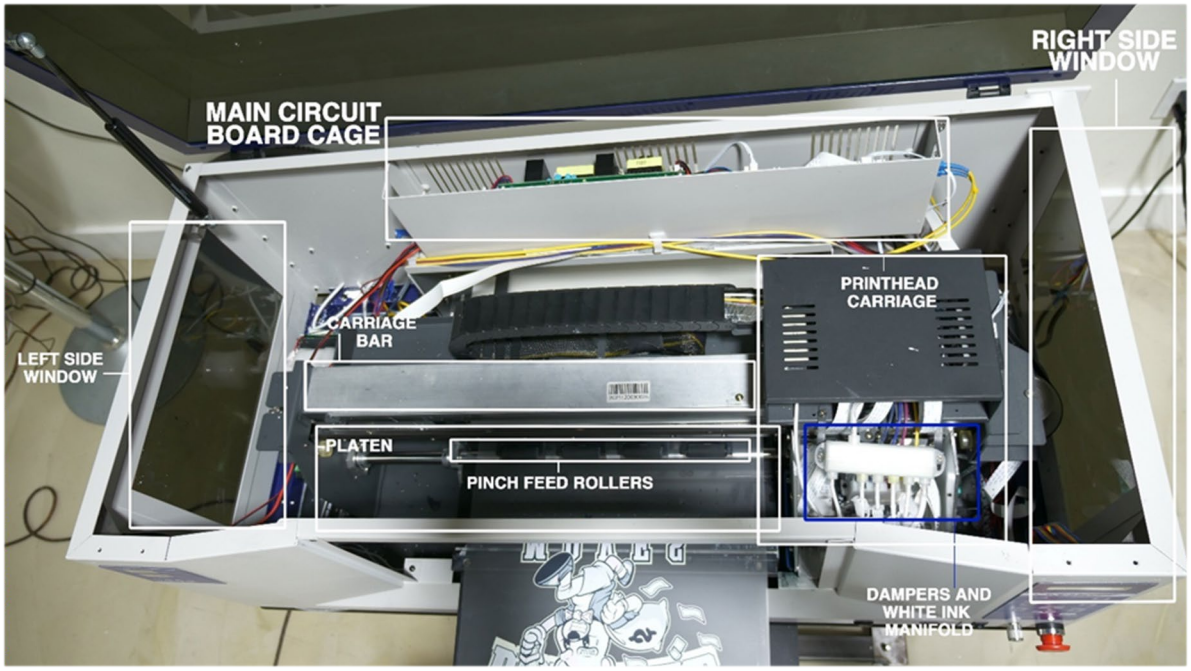
OmniDTF Anatomy

Printer Views

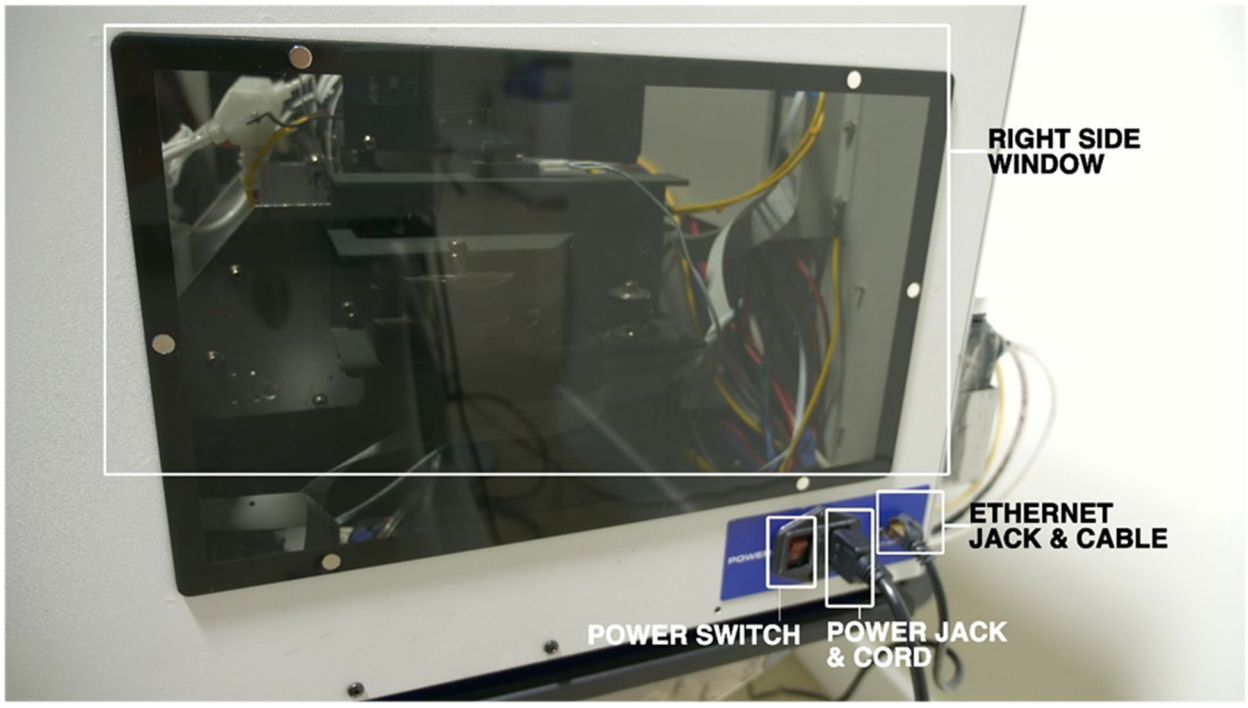
Printer Front View



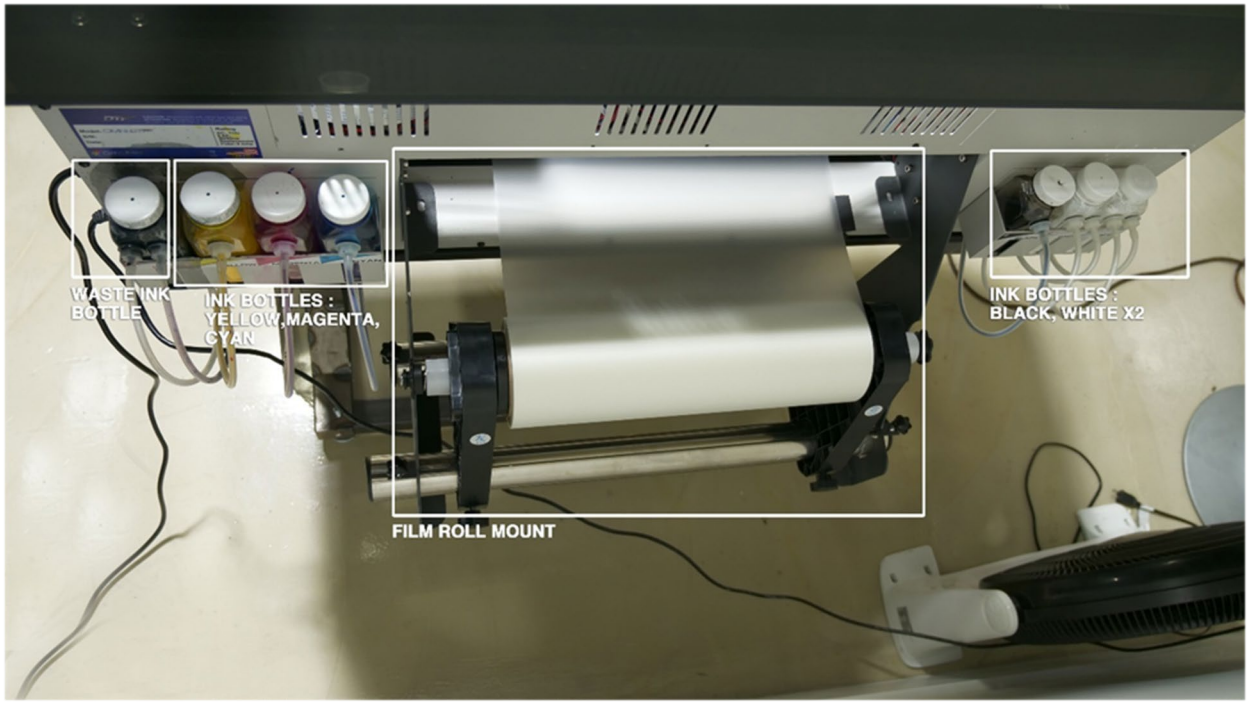
Printer Top View



Printer Right Side View



Printer Rear View

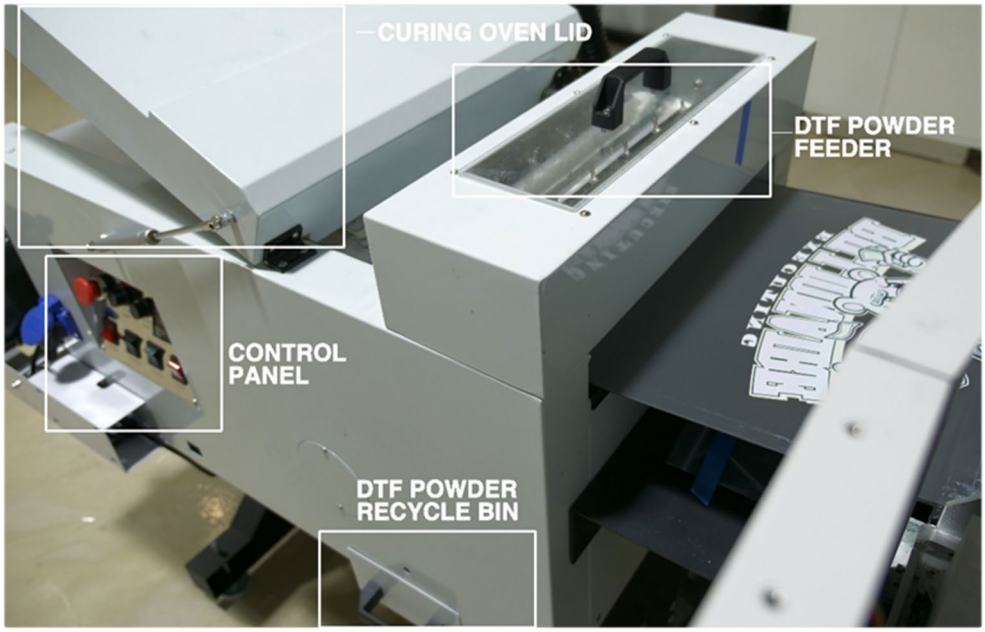


Shipping Bracket

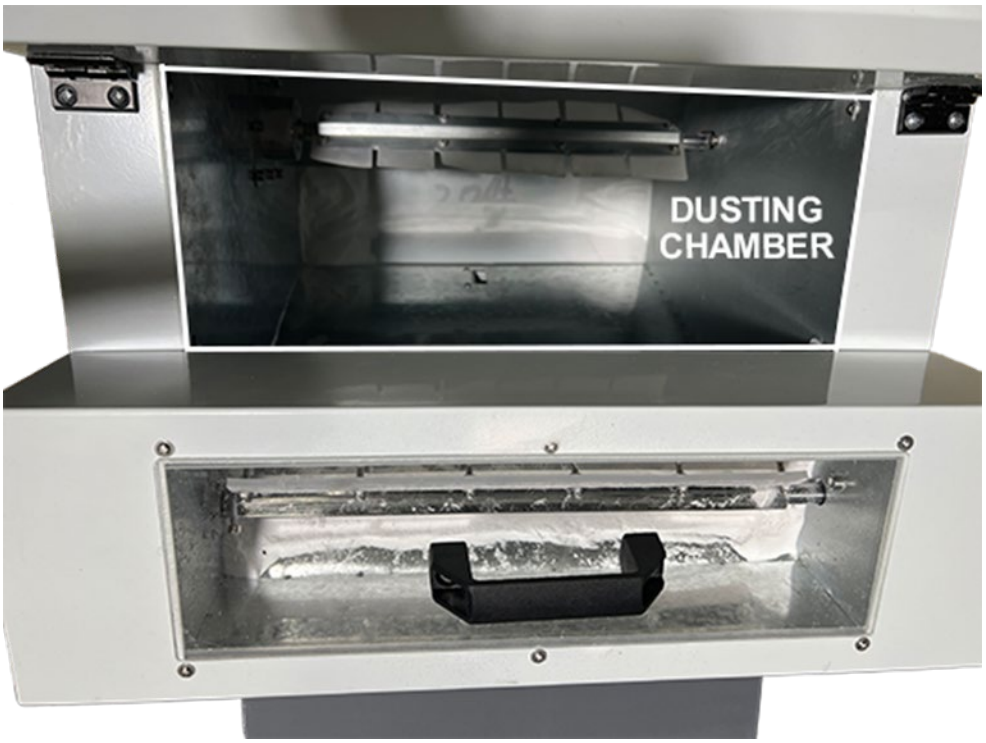
The OmniDTF ships with a yellow bracket securing the printhead carriage during shipment. The bracket must be removed before power is applied to the printer to prevent damage. This is normally done as part of the pre-training setup process. The bracket and bolts should be saved for use in the event of any future shipment.

Dust-Curing Machine Views

Dust-Curing Machine Side View



Dusting Chamber View



Dust-Curing Machine Back View

The DTF Process and Your OmniDTF

Having a good foundation of understanding the general DTF process and how it is implemented in the OmniDTF will provide greater context to support understanding the “why” behind everything related to DTF and your use of the OmniDTF. In this section we will briefly cover the fundamentals of how your OmniDTF system works, wrapped around an overview of the DTF production process. This will empower you to make small adjustments to routine steps, as needed, to achieve a high quality and consistency of production.

DTF Basics

Before jumping into how the OmniDTF seamlessly integrates all the steps of the DTF printing process to maximize your output and print quality, let’s very briefly run down that process.

First, an image is selected for printing and loaded into Raster Image Processing (RIP) software to be “ripped”, meaning that the image is processed to prepare it to be printed. The ripped image is then printed to transfer film. Next, a glue powder is applied to the printed design’s wet ink and that glue powder is then melted to create a consistent layer of glue that bonds to the ink, and later bonds that ink to the fabric.

There are details in each of these steps which we’ll cover next, along with how your OmniDTF system automates each step.

For some who ship printed film transfers to their clients for later transfer to a garment, this will be their complete DTF process. Those who deliver printed garments will use a heat press to transfer the printed design from the film to the garment.

That’s the DTF process in a nutshell. Now let’s see how the OmniDTF automates this workflow!

DTF Process Automation with Your OmniDTF System

1. RIP the image(s): Graphic images, even when optimally sized and with transparent backgrounds, need to be processed for DTF printing by RIP software. Our RIP software, *Print Pro* is finely tuned for our Gamut Plus Hybrid inks for the best print quality and includes a layout feature to support the continuous printing potential of the automated roll-to-roll workflow design.

Besides optimizing each color channel for CMYK printing with our inks, the software automatically generates a *mirrored* RIP of the image files that it processes, since printed images will be flipped over during the transfer process. Also, your selected image or images are organized into a single layout, with the option to enter the number of copies that you want placed onto the layout for each of the images to be printed. Our software handles this effortlessly, automatically orienting and positioning the images to make the best use of the film’s space, maximizing efficiency and production speed.

2. Print to Film: Producing great quality prints starts with high-quality printer components, inks, and film. With your OmniDTF printer, our Gamut Plus Hybrid inks, and Omniprint's years of experience producing award-winning DTG printers, you've got the bases covered.

When printing to transfer film the CMYK color layer is printed first, followed by the white underbase. Your OmniDTF printer prints both layers in a single pass, thanks to its two printheads which are calibrated as a matched pair.

The underbase prints on top of the color because when the image is transferred from the film to a garment, the "top" white layer will end up under the colors. Our Gamut Plus Hybrid ink provides an excellent underbase of opaque white to neutralize even the darkest shirt colors and make the Gamut Plus Hybrid CMYK ink colors on your image designs really *pop!*

There are two types of film: hot peel and cold peel. Both will produce excellent quality prints and transfers. As the names suggest, during the transfer process hot peel film can be pulled away immediately after the heat press has been applied, while cold peel film will need to cool down to room temperature before being peeled.

On the OmniDTF, as the film moves from its feed roll on the back of the printer, it is warmed up by heaters at the back of the printer. This makes the film more pliable, so it lies flat against the platen as it feeds through the printer chassis. The OmniDTF printer's platen is also heated, so the film is at an optimal temperature for the CMYK colors to gel slightly before the film advances and receives the white ink for the underbase. Omniprint spends countless hours perfecting our Gamut Plus Hybrid inks and printing mechanics so you can focus on producing.

With the OmniDTF system, as film exits the front of the printer with the ink of the printed image exposed, it enters the *Dust-Curing Machine*, which is aligned with and attached to the printer with the included *Bridge* pieces connecting the two-device system to ensure proper alignment.

3. Advance Film: Immediately after entering the *Dust-Curing Machine* the film descends into the dusting chamber, where it loops down about 8" and then back up to form a 'U' shape. Near the bottom of the 'U'-shaped loop, on the front wall of the chamber there is a small rectangular slot, behind which is a sensor. This sensor is calibrated to recognize when film is in front of it and then signals to the take-up roll motor that it should rotate to pull film from the *Dust-Curing Machine* onto the roll mounted on the back of the oven. Film is advanced to the take-up roll whenever the film loop inside the dusting chamber is in front of the sensor.

4. Apply DTF Powder: While the printed ink is still wet and sticky a powdered glue, our *DTG Powder* is evenly and liberally applied or *dusted* onto the ink, covering every bit of ink on the printed design. Once the design is completely covered with powder, we shake loose any excess powder and save it for use on future prints.

These *dusting* and *shaking* steps have been automated by the OmniDTF system, and your prints are continually being dusted and shaken during ongoing printing!

Dusting: At the bottom of the 'U' is a supply of DTF Powder that thoroughly coats the ink as the film advances through the machinery. Above the dusting chamber is a DTF Powder Feed – a

supply of DTF Powder which cascades onto the film below, as needed, at a rate controlled by a *Dusting* rate control.

Shaking: As the film advances through the Dusting chamber and rises back up from the bottom of the U-shaped loop, any excess DTF Powder is knocked loose by the *Shaker* – a rotating set of short plastic strips which gently hit the back of the film when it is in its vertical rise towards the curing oven.

5. Cure the Print: The DTF print is cured by melting the glue powder, which binds the glue to the ink and prepares the print for being heat transferred from the film to fabric. The glue will have a glazed, glossy look with sparkling highlights and no dry powder granules remaining when it has been effectively cured.

You will be able to identify a well-cured print visually with experience. As you're getting started you can gently rub the edges of the design of your prints between a thumb and forefinger to feel for dry powder after prints exit the curing oven. If you do feel dry powder rolling under your thumb, that's generally an indication that you need to bump up the temperature of the curing oven to get more complete melting of the glue.

The OmniDTF *curing oven* provides a great melt of the *DTF Powder* on your prints at a range of temperatures, and the ideal temperature setting depends on a variety of factors in your environment.

At the simplest level, the variables are temperature & time, but let's take a minute to run down other factors that can impact the oven's effective temperature and the time period that your prints are in the oven.

- Curing oven temperature setting
- Layout width
- Print speed
- Air purifier connection & fan level (if in use)
- Ambient room temperature

Check out the *Oven Temperature Calibration* information in the Troubleshooting section of this manual for a deeper dive into how to manage these factors.

6. Transfer the Image to a Garment (optional): At the end of the DTF process, separate from DTF *printing* and a step sometimes reserved for DTF printers' clients, the image that was printed to film is transferred to a garment. The transfer is accomplished using a heat press to activate the melted glue and bond it to the fabric of the garment. Once the transfer is done, the film is peeled away from the ink & fabric and discarded.

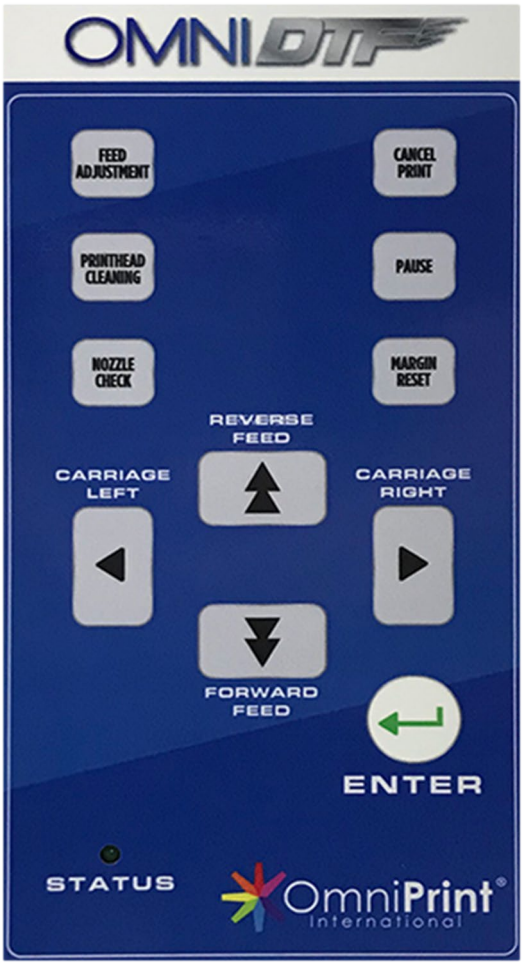
After completing the transfer & peel, we recommend applying a "finish press" to the transferred image on the garment to maximize washability & durability and to provide a softer, smoother feel where the ink sits on the garment. Position the garment back on the heat press with the print facing up, then place a piece of Kraft paper over the image for the finish press.

Hardware Controls

Printer Controls

Control Pad

The control pad on the OmniDTF printer makes it simple to control all of the most frequently used functions (and a few seldom used functions) directly from the front of the printer.



Feed Adjustment: Adjust vertical feed between print passes (use only as directed by Omniprint staff.)

Printhead Cleaning: Run a *Light* printhead cleaning on both printheads.

Nozzle Check: Print a test pattern to confirm that ink flow is optimal and ready to deliver quality prints.

Cancel Print: Stop printing and remove the remaining print job from the printer's memory.

Pause: Temporarily stop printing. Pushing *Pause* a second time will prompt to continue printing.

Margin Reset: Clear the default margin of 10mm (use only as directed by Omniprint staff.)

Carriage Left / Carriage Right: Move the printhead carriage to the left or to the right of its current position. Hold the button for continual movement.

Reverse Feed / Forward Feed: Feed film forward (toward the front of the printer) or backward.

Enter: Submit responses to prompts on the display panel or move the printhead carriage to the *Home* position (above the capping stations) if there is no prompt.

Switches

There are three unique switches directly below the control pad.

White Ink Circulation: When toggled to the ON (1) position, white ink is circulated for 1-3 minutes.

Vacuum: This rotary switch turns on and adjusts the suction of the platen's vacuum. We recommend adjusting it to its lowest level for optimal film feeding and platen temperature stability.

Emergency: This red "kill" switch immediately shuts off power to the printer's electronics when depressed. Once depressed this latching switch will remain engaged and prevent the printer from operating until it is rotated clockwise about ¼ of a turn. It will then pop out and normal operation will be restored.

Heater Controller

The Heater Controller is used to adjust and provide status of the OmniDTF printer's two film heaters. One heater sits behind the platen, to preheat the film as it enters the printer chassis. The second one is under the platen, to keep the film warm as it is being printed on. Heating the film helps the ink *set* quickly, so the white layer can be applied just seconds after the color layer.

Numeric Displays: The *Front* and *Back Heater* displays report each heater's current temperature. When changing the temperature setting, the displays show the changes being selected.

Power: The Power button turns both heaters ON and OFF. If the heaters were on when the printer was last switched off then they will turn back on when the printer's power is turned on.

Select: To change a heater setting, select a heater by pushing the *Select* button. The first press selects the *Front Heater.* A second press selects the *Back Heater.* A third press exits the temperature adjustment mode.

Temp: The *Temp (+)* and *Temp (-)* buttons are used to raise or lower the temperature setting of the currently selected heater.

⚠ *Exceeding the preset temperatures of 40C for the Front Heater and 50C for the Back Heater may result in damage to the printheads and/or printer. Damage due to misuse voids the warranty.*

Dust-Curing Machine Controls

Power

The Dust-Curing Machine (which includes the powder *Dusting* and *Shaking* functions, *Curing Oven*, and the film take-up roll) has its own dedicated power switch. The *Dust-Curing Machine* must be plugged in and the *Power* switch in the ON position for any of the other controls to have any effect.

Emergency Stop Switch

The round, red *Emergency* button above the *Power* switch will immediately shut off power to the Dust-Curing Machine when depressed.

This is a “latching” switch which, once depressed, will prevent the Dust-Curing Machine from operating until the switch is released. If you ever find that the Dust-Curing Machine won’t turn on from it’s power switch, make sure this switch is not depressed.

To release the switch, rotate the handle clockwise for approximately ¼ turn. Once the switch is rotated clockwise, a spring will push it back out and power will then be restored to the Dust-Curing Machine if, or as soon as the *Power* switch is in the ON position.

Dusting

Dusting is a term used for the application of DTF Powder (a special type of glue powder) to the wet ink that has just been printed to film. During the curing process the DTF Powder melts and bonds with the ink. During the transfer process the DTF Powder bonds to the fabric, so it is literally the glue that bonds the printed image to the fabric.

There are two *Dusting* controls used to add DTF Powder onto the film as it passes through the powder application cavity.

Dusting switch: This switch toggles the power to the rotating *Dusting* blades in the DTF Powder Feeder to sweep powder into position to cascade onto the film through narrow slits in the bottom of the powder feeder.

Dusting Speed dial: This dial is used to adjust the rotational speed of the *DTF Powder Feeder*. The further it is turned clockwise the faster the feeder will rotate and sweep DTF Powder into position to be dusted onto the film.

Shaking

There are two *Shaking* controls used to remove excess DTF Powder from the film after it has been applied by the *Dusting* feature.

Shaking switch: This switch toggles power to the rotating *Shaking* spindle with short plastic straps that shake the film as they rotate, shaking any excess DTF Powder back onto wet ink or into the Powder Recycle Bin.

Shaking Speed dial: This dial is used to adjust the rotational speed of the *Shaking* spindle. The further it is turned clockwise the faster the straps will shake the firm to knock excess DTF Powder loose.

Curing Oven Temperature

Using a temperature that will effectively cure the ink and melt the DTF Powder is an important part of the DTF production process. We recommend starting with a setting of 120 Celsius and adjusting from there as needed, using guidelines in the *Curing Dynamics* and *Curing Temperature Calibration* topics in the *Print Automation Management* section.

Curing switch: The curing switch turns power for the *Curing Oven* and the *Curing Temp Controller* ON and OFF.

Curing Temp Controller: The *Curing Temp Controller* is used to set and monitor the oven temperature, using four buttons and two numeric displays.

When the *Curing* power is switched on, the upper display shows the current oven temperature, and the lower display shows the temperature setting.

Changing the temp setting:

Set button: Push and hold the *Set* button until the lower numeric display begins to flash.

◄ *button:* When in the temperature setting mode (having been activated by the *Set* button), the temperature setting display shows a cursor in the rightmost column of the setting number.

We recommend making temperature adjustments in 5-degree increments, so for most temperature changes you'll want to adjust from this position. To change the setting in increments of 10's, use this left button to move the cursor one digit to the left – to the 10's position.

▼ *button:* Use this button to reduce the temperature setting at the cursor position.

▲ *button:* Use this button to increase the temperature setting at the cursor position

The optimal temperature setting for any given print will depend on a variety of factors. See the Print Automation Management *section for details on curing temperature dynamics and calibrating the curing oven's temperature.*

Take-up Roll Motor Switch

This 3-position switch is set to the down position to enable the motor to rotate the take-up roll counter-clockwise (from the perspective of the side of the Dust-Curing Machine controls.) The center position turns the motor off, and the top position is for reverse feeding film backwards, toward the oven and printer.

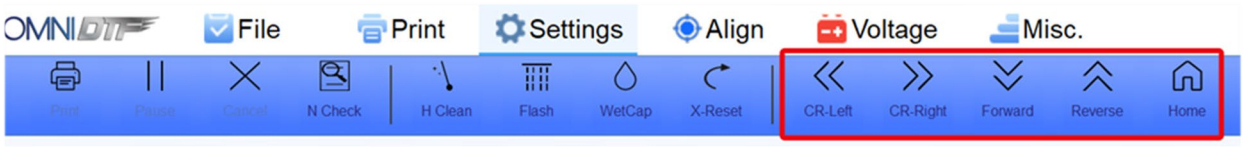
The take-up roll motor operates only as needed when the printer is feeding film into the Dust-Curing Machine. See the Advance Film *item in the* DTF Process Automation *section for more details on how the take-up roll operation is controlled.*

Software Controls

The *OmniDTF UI* program offers a rich set of controls and settings for all aspects of the printer's configuration and operation. A small set of these controls are used in normal day-to-day operation. Several of the software controls are also available from the printer's Control Panel. You may interchangeably use of the hardware or software controls at your convenience.

Motion Controls

The software motion controls duplicate the motion controls on the printer's Control Pad.



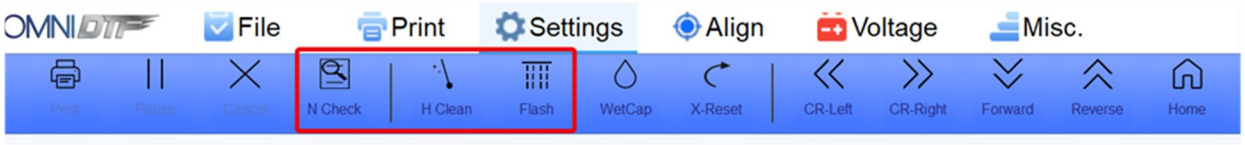
CR-Left / CR-Right: Move the printhead carriage to the left or to the right of its current position. Hold the button for continuous movement.

Forward / Reverse: Feed film forward (toward the front of the printer) or backward.

Home: Move the printhead carriage to the full right, positioning the printheads directly above the capping stations. This is the same function as the *Enter* button on the Control Pad when not responding to a prompt on the *Status Display*.

⚠ *Positioning the printhead carriage does not wet cap the printer, even if the capping stations are full of Super Cleaner. See the separate WetCap control below, and the wet capping section in the Maintenance section for more details.*

Ink Flow Controls



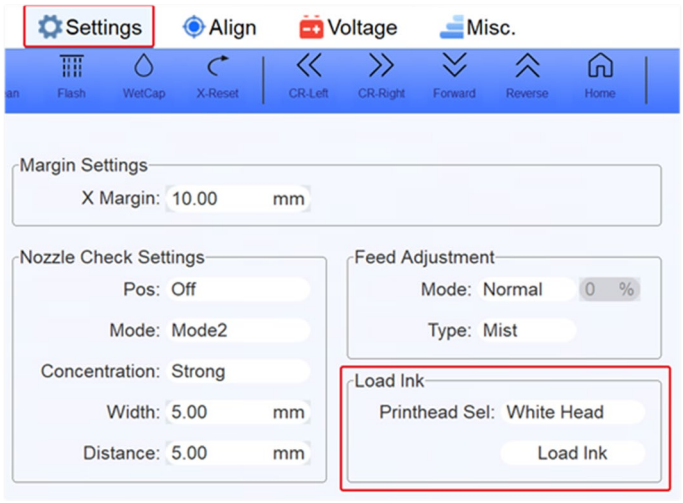
N.Check: Print a test pattern to confirm that ink flow is optimal and ready to deliver quality prints. This is the same function as the *Nozzle Check* button on the printer's *Control Pad*.

H.Clean: This software feature is more flexible and robust than the *Printhead Cleaning* function on the printer's *Control Panel*. While that hardware control performs a light cleaning of both printheads, this software control provides the following options:

- Select *Both Heads*, *Color Head*, or *White Head*
- For the selected head or combination of heads, perform a *Light Clean*, *Normal Clean*, or *Deep Clean*

Flash: When enabled, the *Flash* feature will jet a small amount of ink from both printheads into the capping stations. Omniprint recommends keeping this option disabled (set to "*Unflash*") to prevent the unnecessary wasting of ink and overloading the capping stations with ink during otherwise normal operation.

Ink Load: This feature is available from the *Settings* tab and is primarily used, as its name suggests, to load the ink lines of new printers by pulling ink from the bottles mounted on the back of the printer.



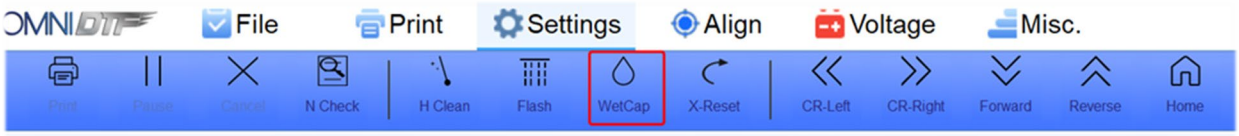
The *Ink Load* function may also be used when troubleshooting ink flow issues, to prime specific printheads or even individual ink lines.

Printhead Sel: Select which printhead to load the ink from: the *White Head*, *Color Head*, or *Both Heads.*

The ink loading process is started by clicking on the *Load Ink* button. The system will continually pull ink all the way from the rear ink bottles to the waste ink bottle until the *Load Ink* dialog window's *Stop* button is clicked.

⚠ *Before and while using the Ink Load feature it is important to check and monitor the level of fluid in the waste ink bottle to prevent overfilling or spillage. We recommend emptying the bottle when or before it is 2/3 full.*

Wet Cap Control



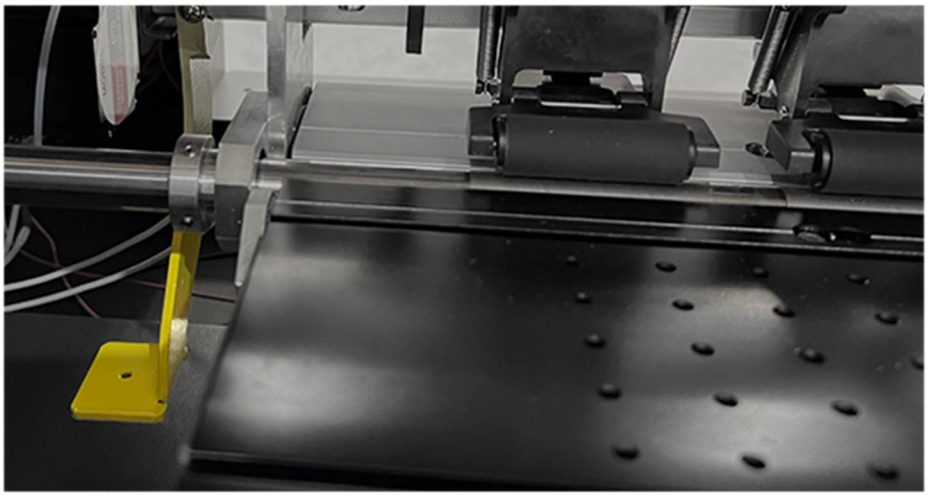
Wet capping your printer is the final step of routine maintenance to be performed when completing a print job or session, to protect the printhead while the printer is idle. Details of its use will be covered in the *Shutdown Maintenance and Wet Capping* section.

Adjustment Tips

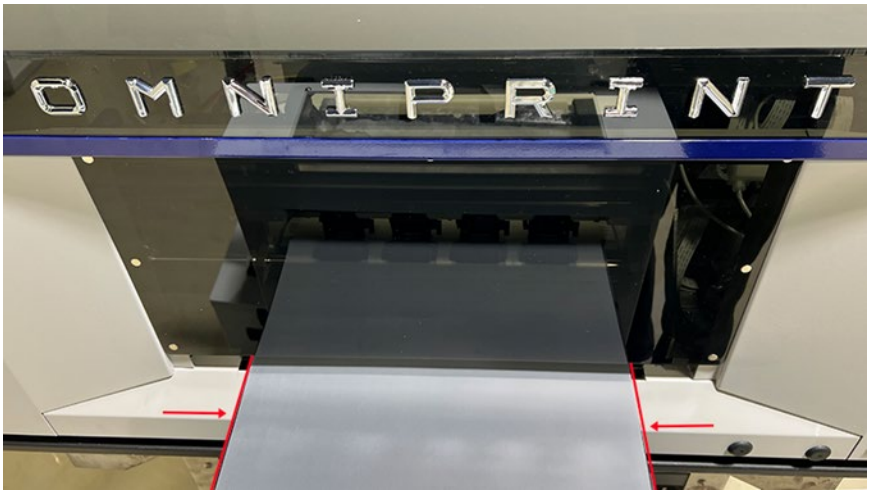
Confirm Proper Film Alignment

To ensure trouble-free operation, it's important to confirm that the film will feed from the roll on the back of the printer, straight through the printer and into the *Dust-Curing Machine,* centered on the bridge connecting those two devices, with no skewing on an angle to the left or right.

Start by using the yellow lever to the left of the platen to raise the friction-feed rollers and allow the film to freely shift its position if there's tension pulling it in any direction.



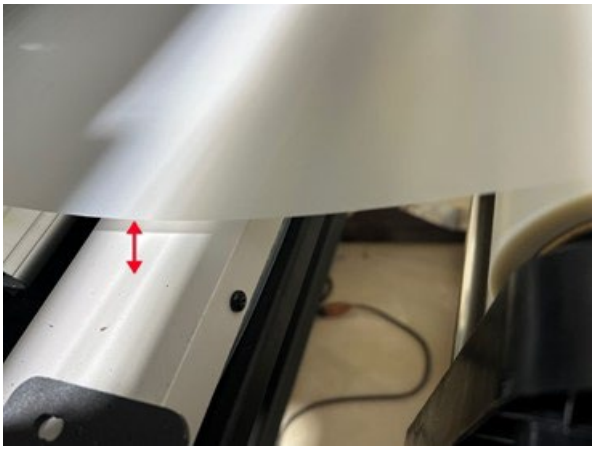
With the rollers lifted, ensure that the film is centered throughout the bridge piece, gently pulling just enough film from the roll to center and straighten it, as needed. The film must lay flat against the platen (see *Head Strikes* section below) with no skewing at an angle. Once centered, flat, and straight, use the yellow lever to drop the friction rollers so they're once again pressed against the film and platen.

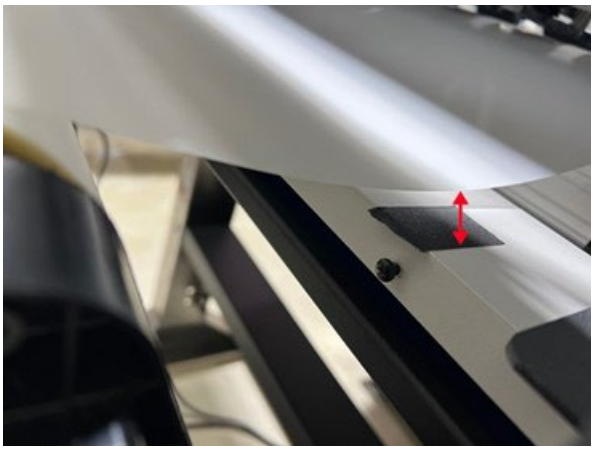


With the film centered across the bridge and straight, now go to the back of the printer. From the back, check to see if there is more slack on one side (left or right) than the other between the friction rollers and the film roll.

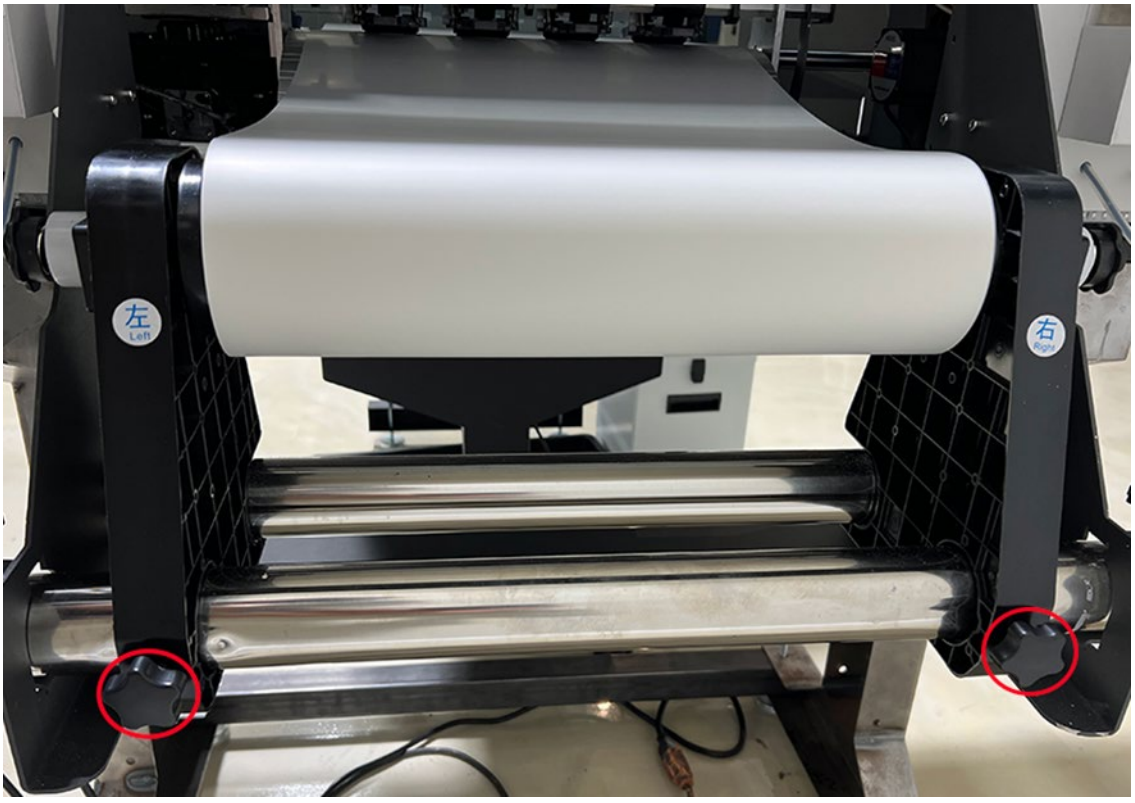
Here's the easiest way to compare (left to right) the amount of slack between the film's feed roll and the platen's friction rollers. Manually rotate the film roll so it is snug, then slowly unwind a small amount of film -- just enough for the bottom of the film to approach or touch the top surface of the printer, as demonstrated in the following photos.

If one side has more slack, it will drape closer to the printer than the other side.





If adjustment is needed, use the knobs (circled in red below) to loosen the bracket's locks and adjust the horizontal position of the rack to equalize the slack on both sides by shifting the roll very slightly in the direct of the side with *less* slack.



Once adjusted and equalized, use the yellow lever again to release the friction-feed rollers and confirm that the film is still centered on the bridge and lying flat with no skewing. Adjust as needed, then drop the friction rollers again using the yellow lever.

About Head Strikes

The term “head strike” refers to a printhead contacting anything other than a wiper blade or capping station seal. Head strikes are sometimes recoverable but may damage printheads to the degree that they must be replaced. Fortunately, you can completely avoid head strikes by being diligent about keeping your film aligned and flowing smoothly from the printer to the take-up roll of the Dust-Curing Machine.

Keeping the film properly aligned is important because if the edge of the film binds on either side of its path into the *Dust-Curing Machine* then the film can bunch up and lift off the platen, possibly causing a head strike.

Operate your OmniDTF printer with the top cover closed and the front window in place to eliminate the risk of anything accidentally being dropped into the path of the printhead.

If you believe a head strike is occurred, follow the directions in the Head Strike First Aid *section ASAP to maximize the chances of a full and speed recovery.*

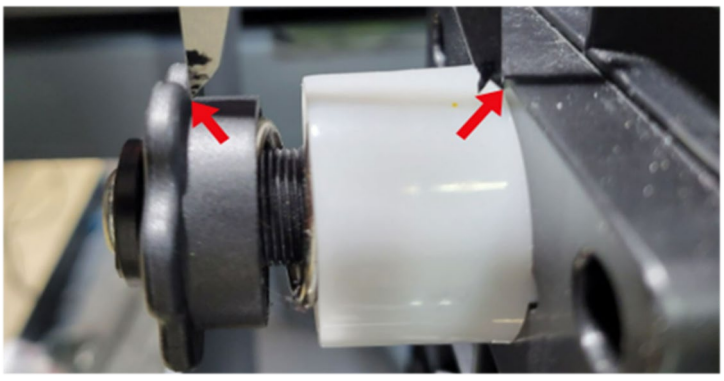
Film Roll Tension Setting

Confirm that the tension of the film roll mounted on the rear of the printer is properly adjusted to ensure minimal friction on both sides (left and right)

1. Measure both knobs from the inside edge of the white plastic to the inside edge of the knob’s handle. The measurement on both ends should be in close range to each other -- approximately 35 mm or 1-⅜”. The goal is to find the point of minimum rotational friction on each end.

2. Rotate both tensioner knobs in either direction to find the lowest resistance point on both.

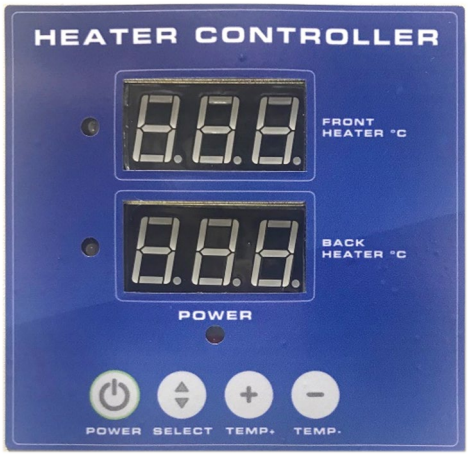
Turning counterclockwise doesn’t continually loosen the tension. If you’ve passed the lowest tension point, continuing to turn in the same direction will increase the tension.



Set Temperatures of the Printer's Heaters

Use the Heater Controller to confirm the following temperatures for the two printer heaters:

- Front heater (top control): 40 Celsius
- Rear heater (bottom control): 50 Celsius



1. If the numeric displays are blank, push the Heater Controller's *Power* button to turn it on
2. If one or both temperatures are not at the desired level, push the *Select* button to enter temperature setting mode and select a heater to change
3. Use the '+' button or '-' button to raise or lower the selected heater's temperature setting
4. Push the *Select* button again to select the other heater, or push and hold to exit the temperature setting mode

⚠ *Exceeding the preset temperatures of 40C for the Front Heater and 50C for the Back Heater may result in damage to the printheads and/or printer. Damage due to misuse voids the warranty.*

Printhead Alignment

The OmniDTF has two printheads. This is part of why it prints two layers at the speed of a single layer print. The color layer is printed first, then as the film advances forward through the printer, the white layer is printed on top of the color layer.

It's important for the two printheads to be properly aligned with each other to make sure the white layer is printing *precisely* on top of the color layer, so there are no white shadows along any edges when the print is transferred.

The two printheads are aligned by Omniprint staff as part of our routine Quality Assurance process. We also check the alignment during customer training sessions and adjust as needed, and printhead alignment is also defined as part of the routine maintenance.

See the *Maintenance* section for detailed steps of the alignment process.

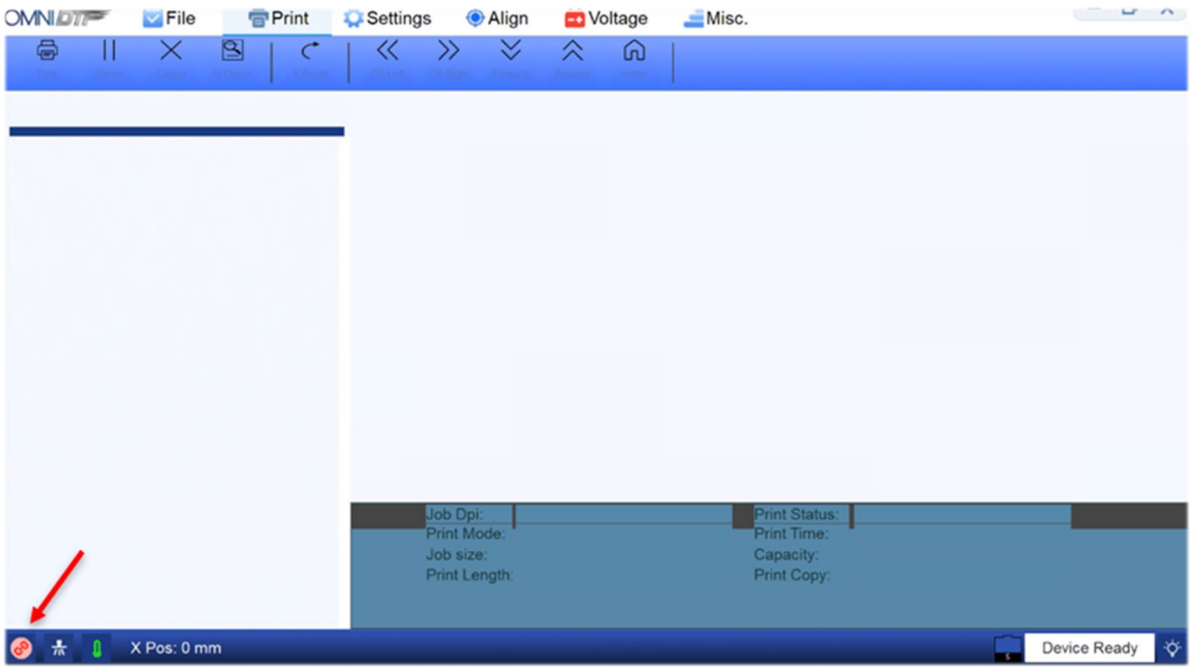
Daily Startup

The daily startup routine for the OmniDTF system is very straightforward and can be made even simpler by following a few tips that we'll include in this brief overview of the process.

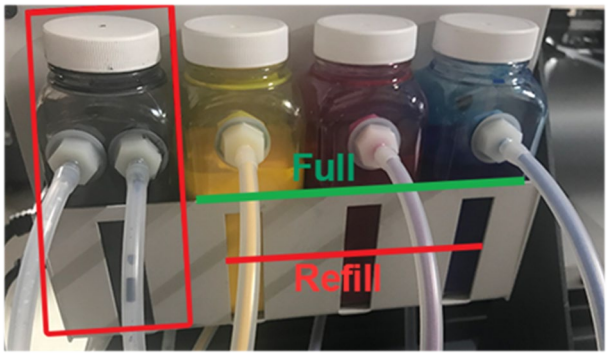
Preliminary Steps

Before starting up the printer, first run the *OmniDTF UI* program on your PC so that when the printer is turned on it can immediately establish a connection with the PC and automatically load configuration data.

The *link* icon in the lower-left corner of the *OmniDTF UI* window will initially be red and flashing. This icon will stop flashing and turn green later, after we turn on the printer.



If the printer has been idle for longer than two days or if the white ink is not opaque, shake the white ink bottles vigorously (while covering the holes in their lids) for 15-20 seconds. Then wait for 15-minutes before continuing to allow the white ink to settle.



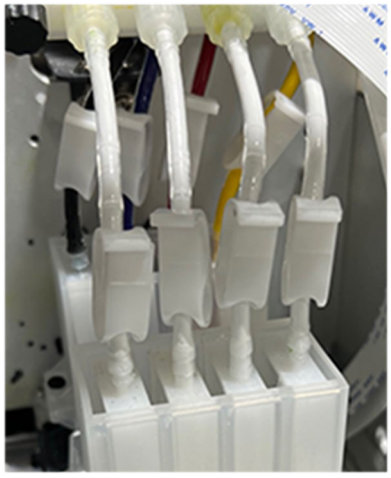
We recommend emptying the waste ink bottle (shown with a red box around it below) during the shutdown process, so if that was done the last time the printer was used then the waste ink bottle will already be empty as you start up the printer. If it is not, empty it now.

Always check the ink levels *before* printing and keep the ink level more than halfway up the

vertical slot in the bracket holding the bottles. When filling ink bottles, fill only to the top of the bracket. We never want the ink level to reach the level of the fittings and tubing entering the bottles as this can cause leakage. Also, check your ink levels throughout the day and refill as needed.

⚠ *Don't let ink levels get below the level indicated above as this can introduce air into the ink lines. Air in the lines may require significant ink waste to remove the air and refill the lines.*

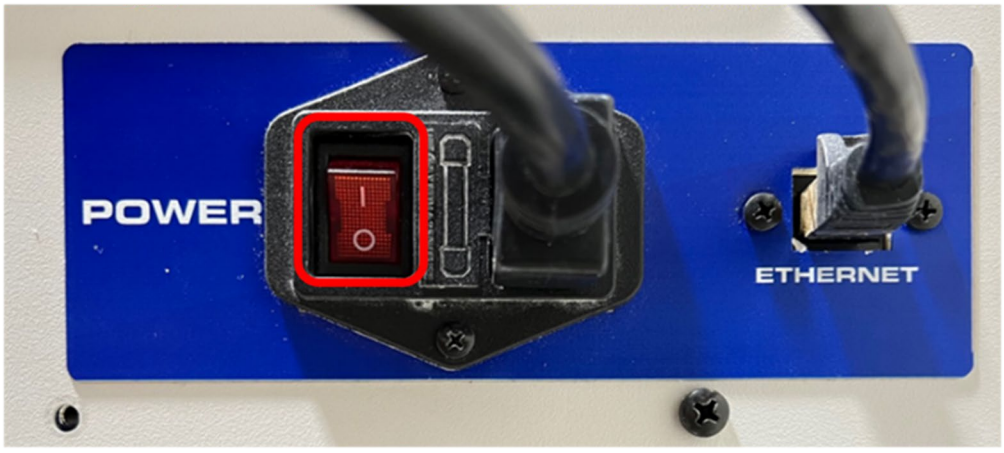
The final step before turning on the printer is to confirm that the white ink lines are clipped shut.



This should already be done since that is an important step of the shutdown procedure, but it's advisable to double-check now, because we'll be circulating the white ink immediately after turning on the printer.

Starting Up the OmniDTF Printer

1. Turn on the printer using the power switch on the right side, near the back of the printer.



Once the printer is turned on and has initialized, the *OmniDTF UI* program's link icon will turn green, indicating that the printer and the PC are communicating.

If the printer doesn't turn on, rotate the red *Emergency* shutoff switch under the printer's Control Pad about ¼ turn clockwise to release it.

2. Circulate the white ink by turning on the *White Ink Circulation* switch on the front of the printer. It will run for 1-3 minutes when switched on. If the switch is already on, white ink began its 1-3 minutes of circulation when the printer was turned on.

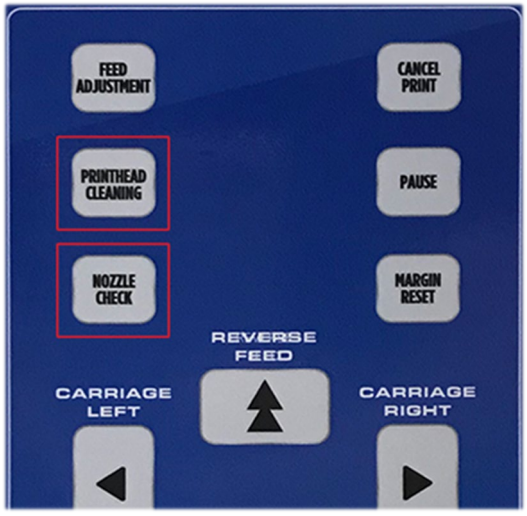
3. Confirm the rotary *Vacuum* switch is on and at its lowest setting by rotating it fully counterclockwise, then rotating clockwise just enough to overcome the resistance of the switch between the off & on positions. We recommend keeping the vacuum at its minimum strength, which provides plenty of power to keep well-aligned film against the platen without cooling the platen heaters.

The White Ink Circulation *and* Vacuum *switches can be always left on so that they automatically run when the printer is turned on.*

4. Open all eight ink clips.

5. Press the *Printhead Cleaning* button on the printer's control pad to run a "head clean".

   - The control pad status will read *Cleaning Head* until finished
   - Once the head clean is completed, repeat this step one more time to run a second printhead cleaning



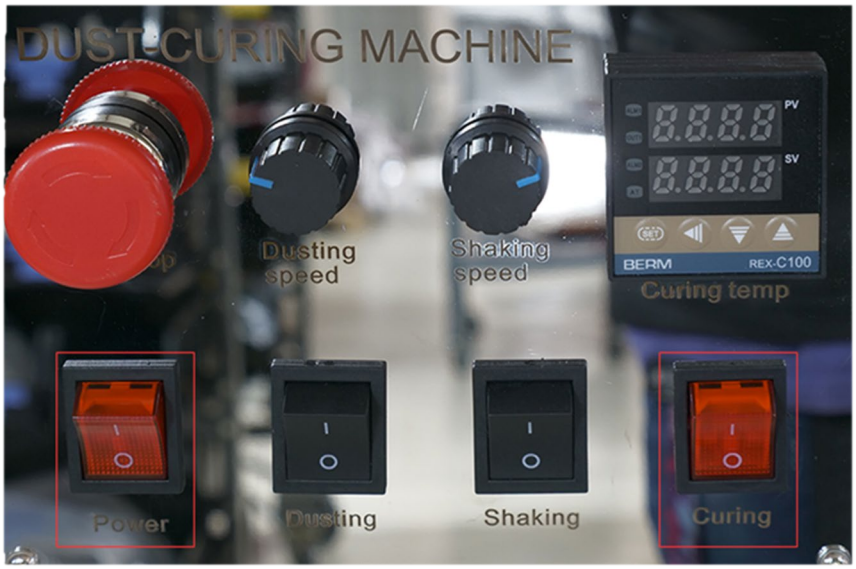
6. Press the *Nozzle Check* button on the control pad to print a nozzle check test.

   - If the nozzle check print isn't at least 90% complete on all 8-channels run additional *head cleans* to improve the ink flow.

Keep an eye on the fluid level in the waste ink bottle throughout the day and whenever running head cleans. Empty the bottle before it gets beyond 2/3 full.

Starting Up the OmniDTF Dust-Curing Machine

1. Turn on the Dust-Curing Machine's *Power* and *Curing* switches to begin heating the oven



The oven's temperature setting from its previous use will be retained. Our recommended starting temperature for new setups is 120 degrees Celsius.

Whenever the oven is at or approaching curing temperature, printing should be underway to keep the film moving. Lift the oven's cover when printing is paused for more than a few seconds to avoid overheating and warping the film.

2. Confirm that there is enough powder on the film in the *Dusting Chamber* (approximately 1-1/2" to 2" width), using the *Dusting* controls to add more as needed.

3. Turn on the *Shaking* switch and set the speed.

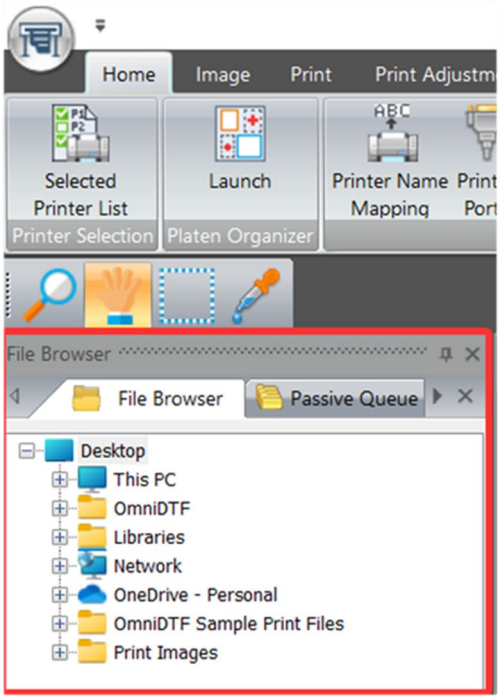
The printer is now ready to print, and you can proceed with production work.

Setting Up a Layout in Print Pro

The *Print Pro* software provided with your OmniDTF system provides a rich set of features for setting up print job layouts using one or more images, and a user-selectable number of multiple copies per image.

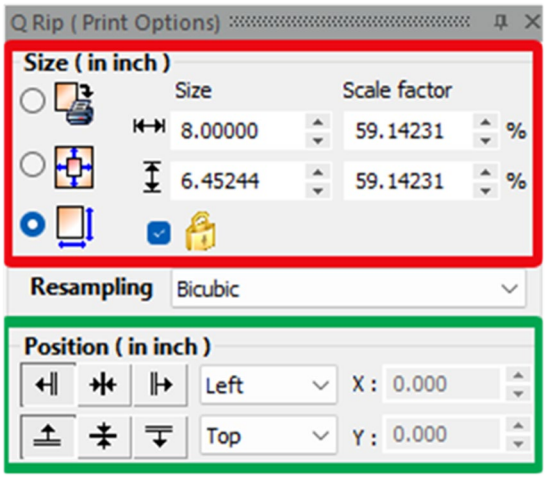
The following is a step-by-step guide for setting up a Layout, to reinforce your Omniprint training and for use as a handy reference.

1. Select and load image files (one or more) from the Print Pro File Browser.



2. As each image is loaded, set the following Q Rip parameters:

   - *Size* – When resizing images, ensure that the padlock icon is selected to maintain the aspect ratio to avoid accidentally distorting the image, and that the width doesn't exceed 14.25". (The film width is 14.5", but we don't want ink at the extreme edge of the film.)

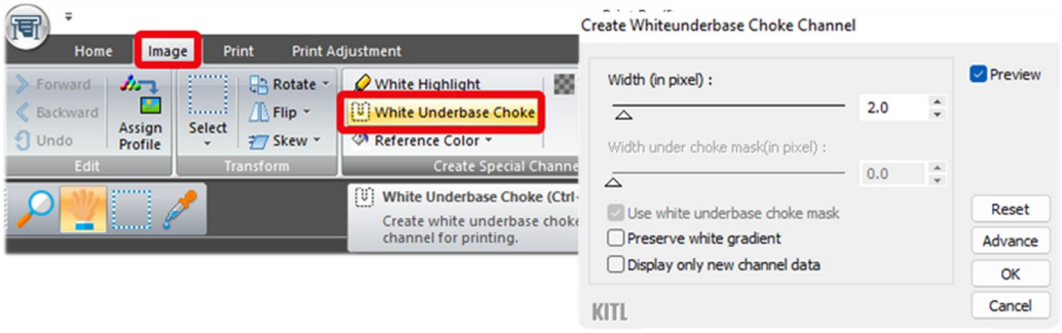


   ⚠ *Downsize images from their designed size at will, but be careful with upsizing, since this can result in jagged curves that impact the printed image quality.*

- *Position* - Left & Top

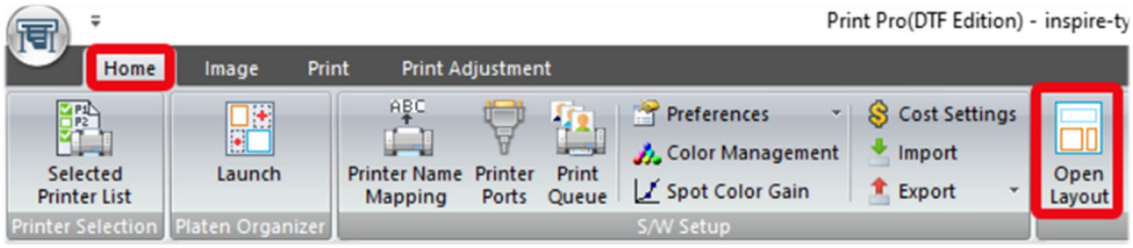
> *The actual printed position of each image on the film will be determined as the images are loaded onto the Layout.*

3. As each image is loaded, also add a *White Underbase Choke*. The default choke width of 2 pixels is recommended. (*Image* tab > *White Underbase Choke*)

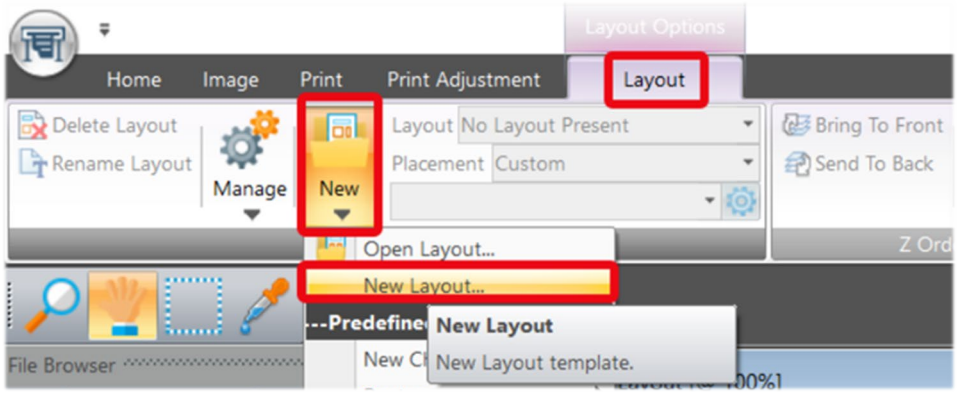


After repeating the above steps for each opened image, we are ready to create a layout *and place the opened and configured images onto it.*

4. Open the *Page Layout* window, if it's not already open. (*Home* tab > *Open Layout*)

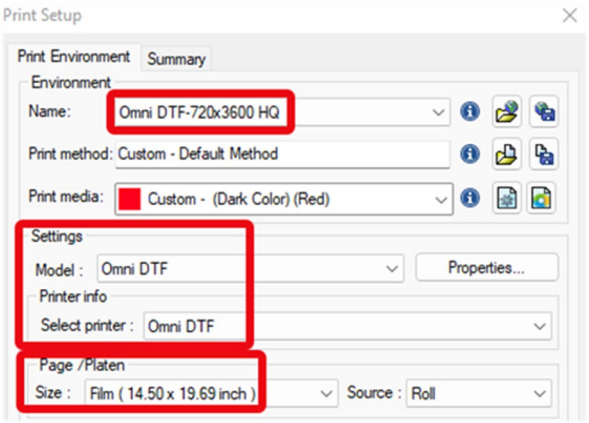


5. Create a New Layout (*Layout* tab > *New* > *New Layout*…)



The *Print Setup* window for a *New Layout* will appear.

6. Select or confirm the relevant *Print Setup* options.



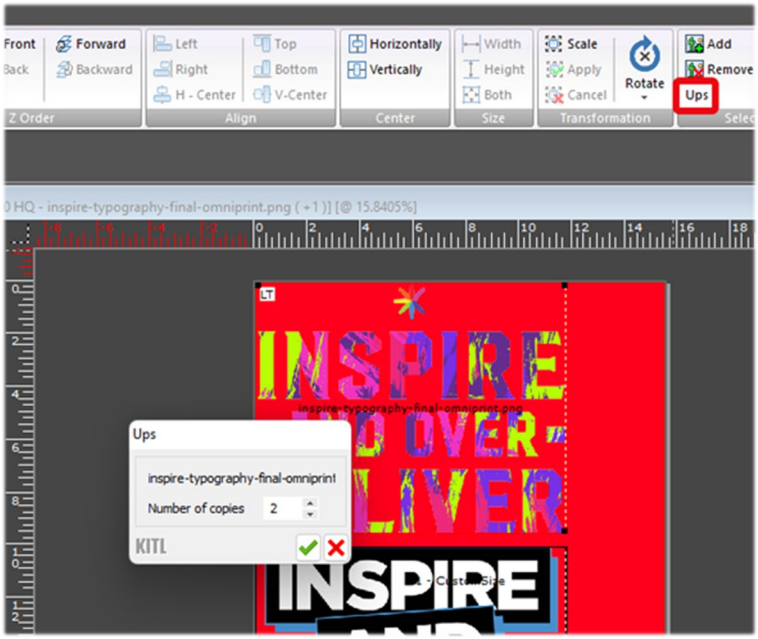
- Pick the desired Environment (see *Information* note below)
- Confirm that *Model* and *Select Printer* are set to "Omni DTF" (or whatever name was assigned for the printer when Print Pro was installed)
- Confirm that *Page / Platen Size* is set to "Film" and *Source* is "Roll"
- After confirming all the above settings (and changing no others), click *OK* to accept/confirm the settings and close the *Print Setup* window.

> *Print Pro* Environments *simplify the setup process by providing many configuration "presets". We recommend the "*Omni DTF-720x3600 HQ*" Environment for the highest quality prints with the most vibrant colors.*

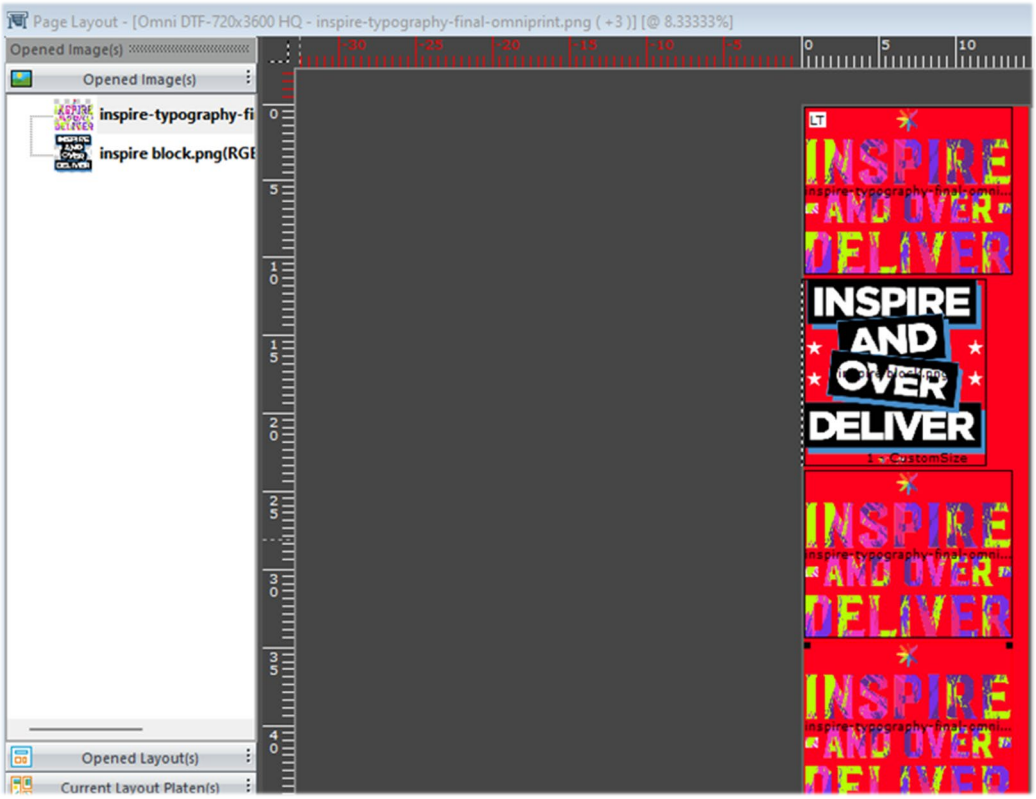
7. Load opened and preconfigured images to the Layout

- Any images previously loaded and configured will appear as thumbnails with their filenames under the *Opened Image(s)* heading on the left side of the *Page Layout* window.
- Double-click on one or more items in the *Opened Image(s)* list to add them to the Layout.

- To *duplicate* any image you've placed on the Layout as many times as desired, hold down the Ctrl key and click on that image on the Layout to select it, then click on the 'Ups' text-button in the Layout toolbar and enter the number of duplicates you want added to the Layout, then click the green checkmark.

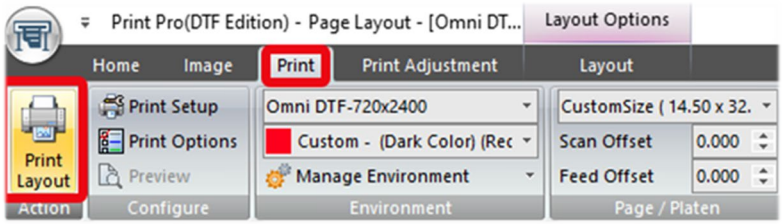


The entered number of copies of the selected image is added to the Layout.



We recommend a maximum of 350 linear (vertical) inches of printing per Layout, to allow running a head clean after every 25-30 large prints (approximately 12" x 12").

8. Go to the Print tab and click on *Print Layout* to run the print job



Another way to start the print is to right-click anywhere in the main Layout window, then select Print this Layout…

9. Click ‘OK’ on the Print dialog that appears to print the Layout

Print Automation Management

Once a Layout has been sent from Print Pro and begun printing, there is generally no further action needed to complete the printing process. However, you'll want to spot-check the operation and individual print results to ensure an ongoing high quality for the entire print job.

Print Job Monitoring

As your print jobs are running, monitor the status of the following items periodically to ensure trouble-free operation and optimal print quality:

- **Film Alignment**: Confirm that the film running through the printer and Dust-Curing Machine is not skewing. Pause printing and adjust as needed to correct any skewing.

  See the *Adjustment Tips* section for instructions on aligning the film.

  ⚠ *Binding of film edges against either side of the film's path can result in a* head strike *due to film rising as the friction rollers advance it.*

- **Powder Dusting**: Activate rotation and adjust the rotation rate as needed to maintain an appropriate amount of powder on the film. Refill the *DTF Powder Feeder* as needed.

  ℹ *When the DTF Powder Feeder's supply becomes depleted, refill it from a bag or pause printing and turn off the Duster and Shaker switches briefly and refill it from the recycle bin. Then turn the Duster and Shaker back on and resume printing.*

  ⚠ *Lift the oven lid to prevent overheating and warping the film if this recycling step can't be completed within about 15 seconds.*

- **Powder Shaking**: Adjust the shaking rate as needed to effectively remove excess powder from the film.

- **Powder Glue Melting**: As prints exit the curing oven, confirm that the DTF Powder has thoroughly melted to a glossy consistency with sparkling highlights. Ensure that all powder has melted.

- **Vertical alignment consistency:** Confirm the accuracy and consistency of the vertical alignment of the print's white and color layers.

- **Head cleaning**: For optimal print quality, run a head clean every 25-30 full-size prints (approximately 12"x 12"), or any time you note a color losing strength.

- **Waste Ink Bottle**: Monitor the fluid level and empty the bottle before it exceeds ⅔ full.

- **Ink Bottles**: Refill before the level drops below half full to maintain optimal ink flow.

Curing Dynamics

Proper melting of DTF Powder glue onto film prints (curing the print) is accomplished by heating the powder to a curing temperature for a sufficient time period to result in a glossy look and a slightly tacky texture to the melted glue with very minimal, if any, slightly powdery edges.

Given the in-line design of the curing oven within the automated workflow of continuous roll-to-roll printing with the OmniDTF, the time period any print will be inside the oven's 15" length (approximately, between the entrance to and exit from the oven) is the time it takes to print 15 vertical inches of the current layout.

Knowledge is power and understanding the factors that can impact ideal melting of the DTF Powder empowers you to adjust *if needed* to achieve great melts on your OmniDTF prints.

- *Curing oven temperature setting:* The oven's temperature setting is the most direct factor, using its internal heat sensor to activate the oven's heating elements as needed to aim for the targeted temperature.
- *Print speed:* Faster print speeds feed the film through the oven more quickly than slower print speeds, since film advances through the oven at the rate that it feeds through the printer.
- *Layout width:* A narrower layout will feed the film at a somewhat higher speed than a wider layout, since the carriage has a shorter distance to travel.
- *Ambient room temperature:* Changes in the temperature of the printer's environment can impact the oven's heating efficacy.
- *Air purifier (optional):* Higher fan speeds with input ducting hose directly connected to the oven's exhaust vent may cause cooling due to excessive air flow through the oven.

The primary guideline to remember is that we are aiming for the result of a glossy look and a slightly tacky texture to the melted glue, *not* a particular temperature or print speed. Small variations within a generally consistent print speed and environment don't usually require temperature adjustments.

We recommend that new setups start out with a temperature setting of 120 degrees Celsius and adjust from there, as needed.

Curing Temperature Calibration

Ideally, you want your cured DTF prints to have a glossy look and slightly tacky texture with the powder fully melted onto the entire surface of the print and with very minimal, if any, warping of the film.

As mentioned previously, we recommend that new setups start out with a temperature setting of 120 degrees Celsius and adjust from there, as needed. In this section we will address adjusting the curing oven's temperature setting in the event of either extreme film warping or incomplete powder melting.

Addressing film warping is most straightforward, so let's start there.

Calibrating temperature for heavy warping of the film

First, remember that warping *when the film isn't moving through the oven* is to be expected. This doesn't indicate that the temperature setting needs to be changed but should be prevented by tilting open the curing oven's lid or turning off the *Curing* switch if printing has been paused or completed.

If you notice heavy warping of the film during active printing operation turn down the temperature in increments of 5 degrees Celsius until warping is resolved. For example, if the temperature is set to 132 degrees when warping occurs, change the setting to 127 degrees (132 minus 5) and run a test print. If warping still occurs, drop the temperature another 5 degrees and test again.

It's very unlikely that you would need to make more than one temperature adjustment if the temperature started at a level that was working fine for your last print job, but the calibration process is to simply drop the temperature by 5 degrees and re-test until the problem is resolved.

Calibrating temperature for incomplete cures

Again, we're looking for a glossy look and slightly tacky texture with the powder fully melted onto the entire surface of the print. That said, a slightly powdery texture on the extreme edges of wide prints will not typically affect the transfer if the rest of the print is well-cured.

If your prints coming out of the curing oven don't have a glossy look and you can see and feel that there are areas with powder that hasn't fully melted resulting in incomplete transfers, the temperature setting is too low.

Turn up the temperature in increments of 5 degrees Celsius until cures have a proper glossy look and tacky feel throughout the print. For example, if the temperature is set to 120 degrees when warping occurs, change the setting to 125 degrees (120 plus 5) and run a test print. If the cure is still incomplete, raise the temperature another 5 degrees and test again.

Don't set the temperature higher than 160 degrees Celsius. If you get incomplete cures at that setting, contact Omniprint for assistance.

Corrective action to save prints with incomplete cures

While our focus in this section is on calibrating your curing oven's temperature to ensure complete cures that reliably transfer cleanly, let's take a minute to cover corrective actions. Prints with incomplete cures don't have to be scrapped. They can instead be sent back into the oven to complete the curing using the following steps.

1. Pause the printer when both layers of the currently printing image are complete.
2. Change the position of the switch on the take-up roll assembly to the center (OFF) position.
3. Turn the temperature up 5 degrees Celsius (but do not exceed 160 degrees Celsius).
4. Manually feed the section of film that needs more curing back into the oven.
5. Leave the film in the oven for 30-seconds.
6. Bring the section of film being re-cured out and check the status of the glue melt.
   If the cure is still incomplete, repeat steps 3 through 6 until the cure is complete.
7. Once the cure is complete, change the take-up motor switch back to the down position.
8. Resume printing from the printer's *Control Pad* or from the *OmniDTF UI* program.

Curing Guidelines

Now that we've covered print curing dynamics and temperature calibration, here are some general print cure guidelines in a nutshell.

- The best temperature for any given set of parameters is the temperature at which the powder-melting cure results in a glossy finish that is tacky to the touch as it exits the oven.

- If powder can be felt and rubbed off the film between a thumb and forefinger after it has come out of the curing oven, the print isn't thoroughly cured so adjustments and corrections are needed.

- When using a filtered air purifier, use a lower fan speed and place the intake ducting an inch or so above the top of the oven's vent. This will draw the air rising out of the oven into the purifier and avoid pulling excessive volumes of *cooling air* into and through the oven, which can happen when an air purifiers input hose is directly connected to the oven's vent and the purifier's fan operates at higher speeds.

Transferring a Print

Transferring a finished print to a garment is simple and can be done immediately after DTF printing and curing, or up to a month later. Longer storage times may be possible if carefully stored in an air-tight container and in a climate-controlled environment.

1. Prepare your heat press for a DTF image transfer.

Heat Press Parameter Guidelines for DTF Transfers *			
Fabric & Film Types	**Temperature Range ****	**Pressure Range**	**Press Duration Range**
Hot Peel on Cotton	260° - 320°	5-7 on Stahl's (50-70 psi)	30-45 seconds
Cold Peel on Cotton	280° - 330°	5-7 on Stahl's (50-70 psi)	20-30 seconds
Hot Peel on Poly	260° - 300°	5-7 on Stahl's (50-70 psi)	30-40 seconds
Cold Peel on Poly	280° - 300°	5-7 on Stahl's (50-70 psi)	20-30 seconds

** Some specific garments may transfer best using parameters outside of our general guidelines. Use the settings that bring you the best results for your materials.*

*** All temperatures in the above table are Fahrenheit.*

2. Cut out the image that you want to transfer to a garment from the film roll.
3. Place the garment to receive the transfer onto the heat press.

An initial pre-press of the garment prior to the transfer press can be helpful to remove any wrinkles and slight moisture in higher humidity environments.

Verify that the collar, shoulders, and any seams are draped off the side of the heat press to ensure proper pressure at the transfer location.

4. Place the DTF print on the garment, with the ink & glue side of the film directly against the fabric, positioned exactly where you want it transferred.
5. Press the transfer onto the fabric using the above temperature, pressure, and duration.
6. Remove the garment from the heat press, lay it on a clean, flat, hard surface, and carefully peel the film away from the garment at a moderate rate.

When using cold peel *film, delay the next step for a minute or so, until the garment has cooled down to room temperature.*

7. Place the shirt back on the heat press with a sheet of parchment or Kraft paper between the shirt and the top of the heat press, then perform a final "finish" press for an additional 20 seconds at the same temperature and pressure as the transfer. This further cures the surface of the print and creates a smoother transition between ink & fabric.

The transfer process is now complete!

Shut Down Maintenance and Wet Capping

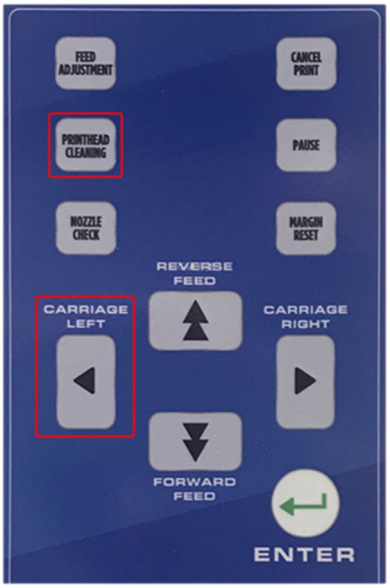
Properly shutting down your OmniDTF system at the end of a productive day is very important to ensure that it will be ready to print the following morning, or whenever you will be running your next print job. Fortunately, the process is very easy!

Take about 10 minutes to run through these steps to shut down the system.

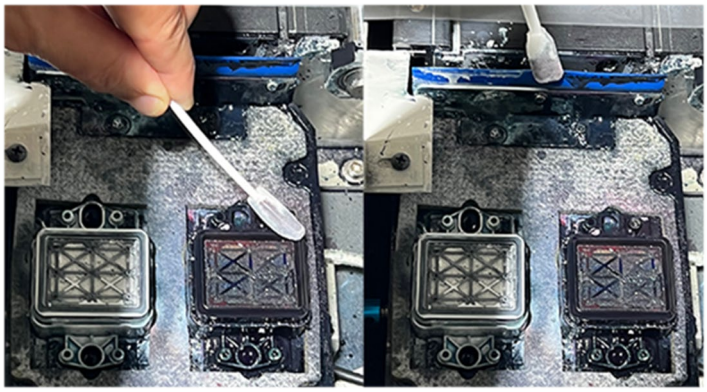
OmniDTF Dust-Curing Machine Shutdown

If you haven't already done so, start the shutdown process by turning off the Dust-Curing Machine's main *Power* switch. This is a master switch that, when turned off, cuts power to the *Duster*, *Shaker*, and *Curing Oven* – so shutting off any other switches is optional.

OmniDTF Printer Shutdown



1. Press the *Printhead Cleaning* button on the printer's control pad to run a light head clean on both printheads.
2. Press and hold the *Carriage Left* button to move the printhead carriage to the full left position.
3. Reposition all 8 ink line clips slightly up or down on the ink lines, then clamp them shut.
4. Wet an anti-static foam swab or lint-free cloth with Super Cleaner, then use it to clean the following areas:
    - Rubber seals surrounding both capping stations
    - Full length of the wiper blade



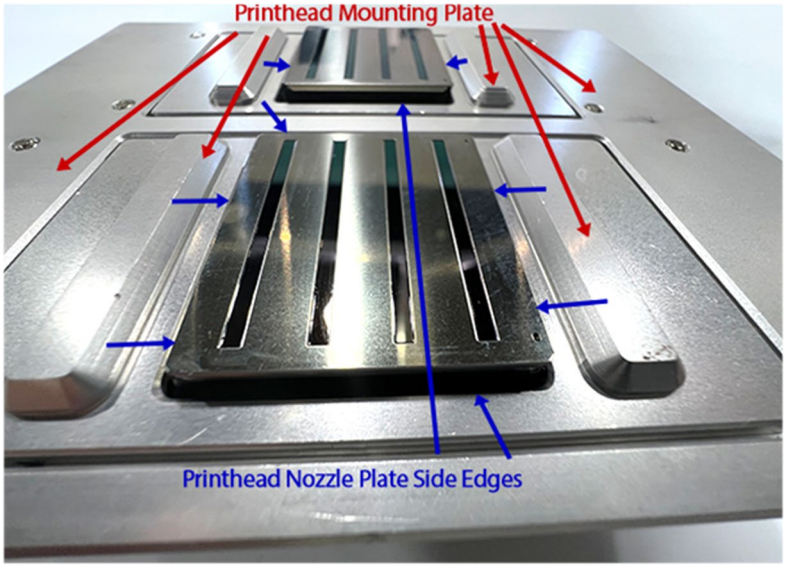
⚠ *If there are any bits of dried ink on the capping station sponges or seals, remove them with tweezers.*

5. Fill both capping stations to the top of their seals with Super Cleaner.

The remainder of the steps before completing the wet capping of the printhead are done to keep the printhead mounting plate and the side edges of the printhead nozzle plates clean. If these areas are allowed to accumulate ink, then eventually dry ink will hang below the printhead and leave streaks on the film.

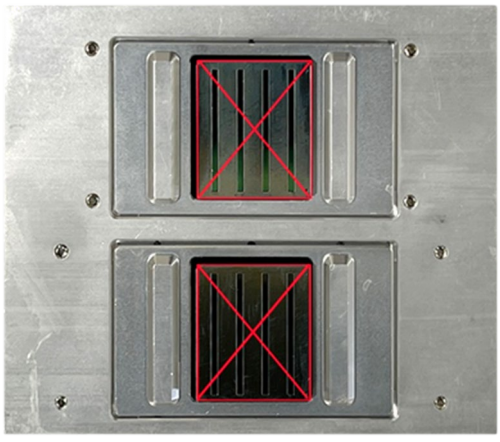
Please note the following images of the shape and relationship of these parts to each other, and examples of how they may appear before and after cleaning.

Areas of the printhead mounting plate and nozzle plate edges to be cleaned



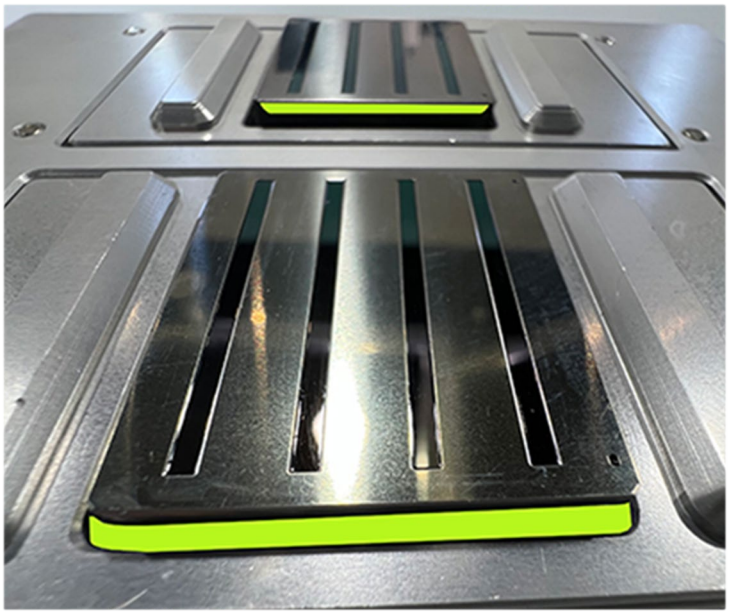
Above: Bottom of printhead mounting plate with printheads installed. Red arrows point to areas of the mounting plate (clean entire mounting plate); blue arrows point to the side edges of the printhead nozzle plate.

Below: Printhead nozzle plate should be left alone to be cleaned only by the wiper blade (automatically.)



The downward facing surface of the printhead plates (shown in red boxes with X's) should be avoided, while the side facing edges and the entire mounting plate should be cleaned.

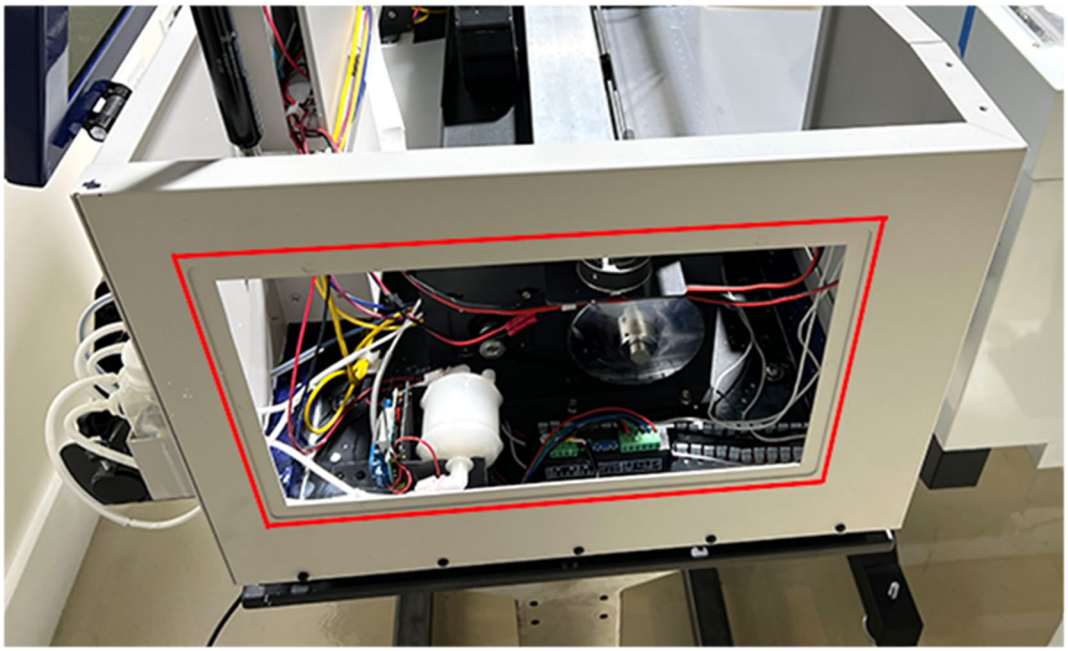
Areas of the printhead nozzle plate edges to be cleaned



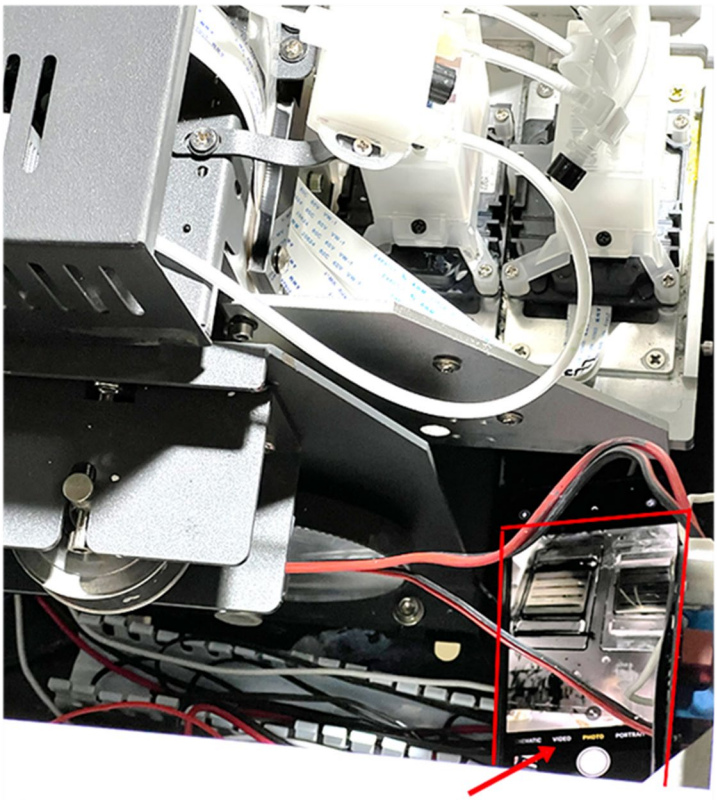
Highlight of side edges of the printhead nozzle plate. One side edge of each printhead is shown. Clean all four side edges of both printhead nozzle plates.

With that visual overview of the areas of the printhead mounting plate and the printhead plates to be cleaned (and *not* manually cleaned) completed, let's proceed with the process.

6. Remove and set aside the printer's left side window by tilting the lid open and gently pushing the window outward from inside the chassis, releasing the grip of the magnets.



7. Place a mirror or smartphone camera in selfie-mode inside the front-left corner of the printer chassis, tilted at an angle to view the printhead plates and their mounting plate on the bottom of the printhead carriage.



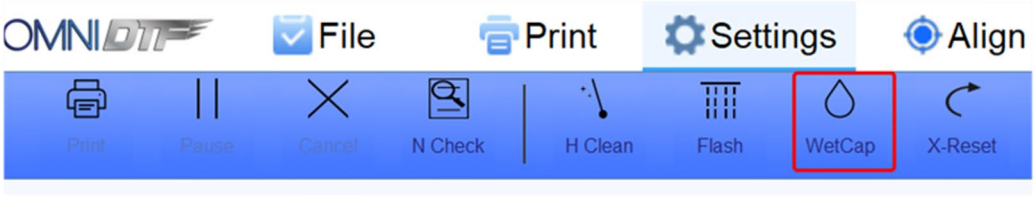
Placement of mirror or smartphone camera in selfie-mode

8. Use a clean, lint-free cloth with some Super Cleaner to wipe any ink from the mounting plate or the side edges of the printheads.

   A foam swab can be used to clean the area at the front of the white printhead if it isn't possible to wipe with a finger in that tight space.

   If contact is accidentally made with the face of the printhead's nozzle plate, dab (but do not rub) the area contacted with Super Cleaner on a clean, lint-free cloth 2-3 times, then proceed.

9. Click the *Wet Cap* button under the *Settings* tab in the Omni DTF program.



   You will be prompted to confirm that the capping stations are filled with cleaning solution, then the carriage will go to its docked position and the capping stations will be raised to press their seals against the printhead plates.

   The printer's *Status Display* will read "Keeping Wet".

10. Empty the waste ink bottle.

The printer can now be turned off from the power switch on its right side.

Preventative Maintenance & Schedule

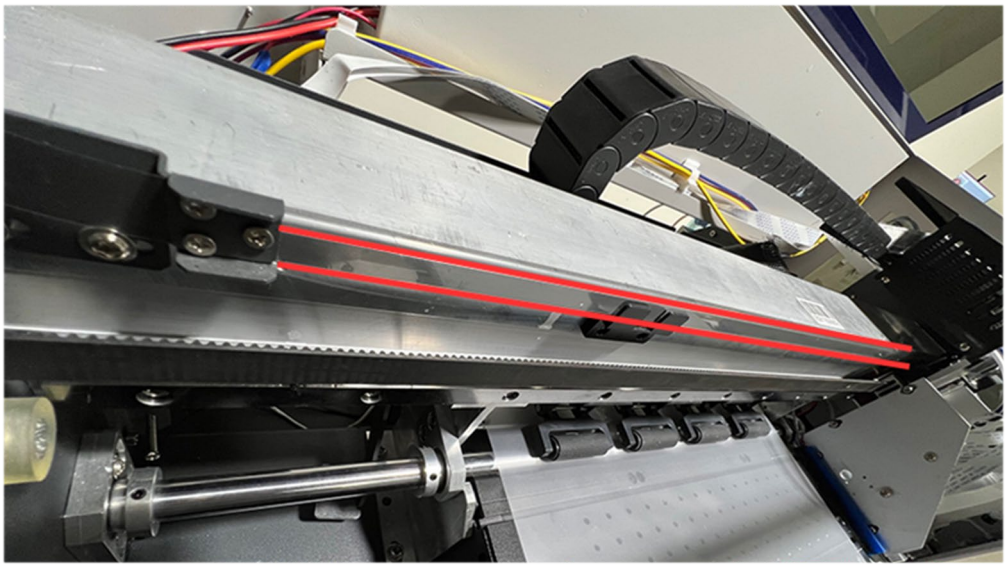
Preventative maintenance for the OmniDTF consists of a few routine tasks for three time-periods: weekly, bi-weekly (every other week), and monthly. There is one task to be done for each of those time periods.

Like the daily shutdown process detailed above, while the maintenance requirements are minimal, it's important to stay on top of them to keep the OmniDTF operating with its maximum reliability and print quality.

Weekly Maintenance

Clean the encoder strip with 70% isopropyl alcohol and a lint-free cloth, or as needed to maintain excellent print quality.

1. Tilt the printer's top cover open to access the encoder strip inside of the chassis.

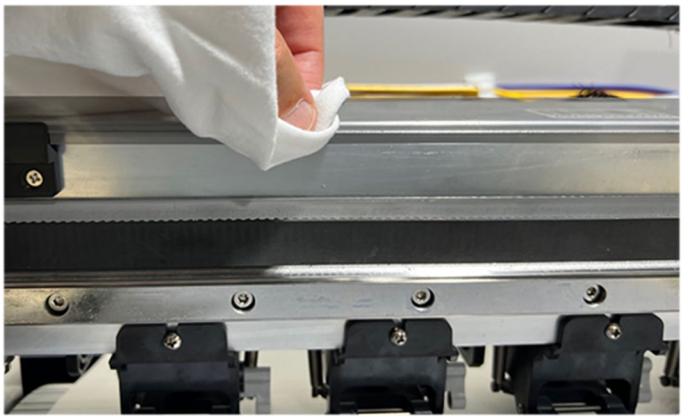


The encoder strip runs the length of the printhead carriage's travel. Its markings are read by a sensor on the carriage when in motion to track its current position.

2. Dampen a lint-free cloth with 70% isopropyl alcohol.

Use no other cleaning materials – ONLY 70% isopropyl alcohol! Use of <u>any other</u> materials (including Super Cleaner) may damage the markings and require encoder strip replacement.

3. Fold the wettened part of the lint-free cloth over the encoder strip so that one side of the fold is against the front of the encoder strip and the other side of the fold is against the back of the encoder strip. Then wipe the section of the encoder strip to the left of the printhead carriage, as pictured below.



4. Use the printer's *Carriage Left* button to move the printhead carriage to the far-left position, then clean the section of the encoder strip that you couldn't get to before.
5. Return the carriage to its *Home* position using the *Carriage Right* button, or wet cap the printer if you will not be printing.

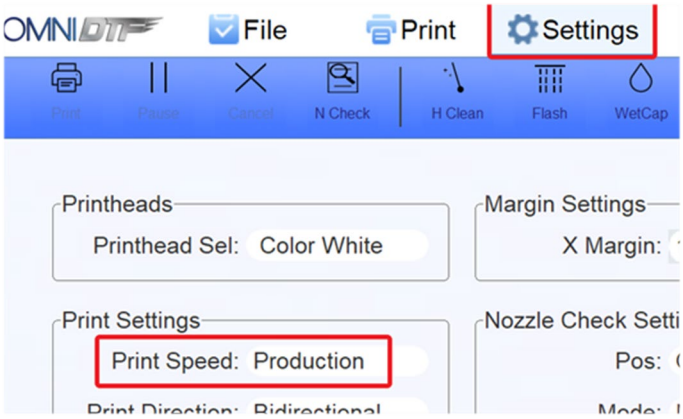
Bi-Weekly Maintenance

Printhead Alignment

It's important for the two printheads to be properly aligned with each other to make sure the white layer is printing *precisely* on top of the color layer, so there are no white shadows along any edges of the design when the print is transferred.

Print Speeds

There are three Print Speed settings for the OmniDTF: Production, Normal, and High Quality. All printhead alignment adjustments are made for a given Print Speed, so alignments should be made with the Print Speed being used when printing selected as the Print Speed for the alignment. The Print Speed currently selected for printing is shown (and may be changed) on the Settings tab.



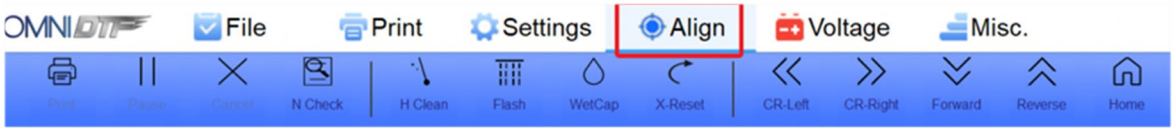
Production speed is recommended as it delivers the fastest output at any resolution & ink density selected from the RIP software's Environment options.

Alignment Types

There are four types of alignments that can be done. We'll explain and detail the process for each following the list of types below:

- Head Vertical Distance Adjustment
- Head Horizontal Distance – Left Adjustment
- Head Horizontal Distance – Right Adjustment
- Bidirectional Adjustment

To get started, all printhead alignment adjustment types are found under the *Align* tab of *OmniDTF UI* program.



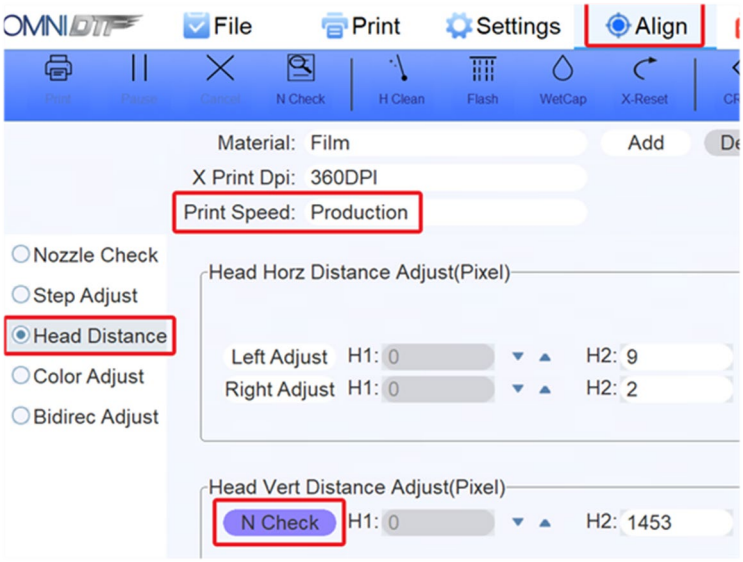
Head Vertical Distance

This adjustment aligns the white and CMYK printheads vertically (lengthwise).

If you see that your printer's vertical registration is off, see Film Roll Tension Setting *in the* Adjustment Tips *section to check the tension of the feed roll on the back of the printer before running the following process.*

1. Select your Print Speed to match that on your Settings tab (or the speed you want to now align for if you're running alignments for multiple speeds.)

2. Select the Head Distance option on the left side of the Align screen.



3. Click the *N Check* button under the *Head Vert Distance Adjust* heading when you're ready to print the test pattern.

The test pattern prints a series of black & white horizontal line segments above numbered labels. The numbers range from -14 to +14, in increments of 2 and with zero in the center position.

Our task is to identify the column number whose line segments show the black & white portions in best alignment with each other, resulting in a single straight horizontal line. In the above example, the best column is '+4'.

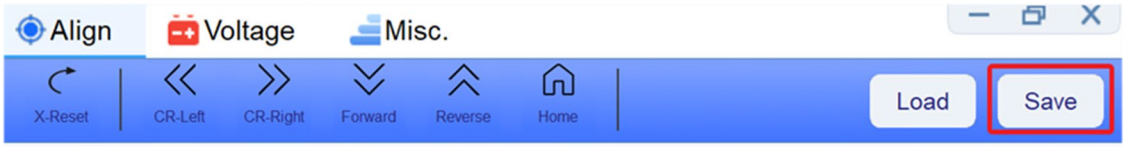
In the '+2' column the white segments are slightly below the black segments, and in the '+6' column the white segments are slightly above the black segments. As you look to the left of the '+2' column you can see that the white segments keep getting further below the black segments and to the right of the '+6' column the white segments keep getting further above the black segments.

So, our takeaway from the evaluation of the test print is that the column with the best alignment is '+4'.

4. Now let's return to the OmniDTF UI software's Head Vert Distance Adjust section and note the current value of H2. In our screenshot from step #2 above, the value of H2 is "1453" and the number we got from evaluating the test print in step #3 was '+4', so we add '4' to '1453' and enter the result of 1457 into the H2 field.

   If the column number from step #3 had been a negative number ('-4', for example), we would have subtracted '4' from '1453' and entered '1449' into H2.

5. Click the Save button in the top right corner of the OmniDTF UI window to make the alignment adjustment.



6. Repeat step #3 above to print another test pattern. This should result in the best-aligned column sitting in the '0' position. If this is the case, the *vertical distance adjustment* is now completed. If not, repeat steps 3 - 5 to ensure that the best alignment is in the '0' position

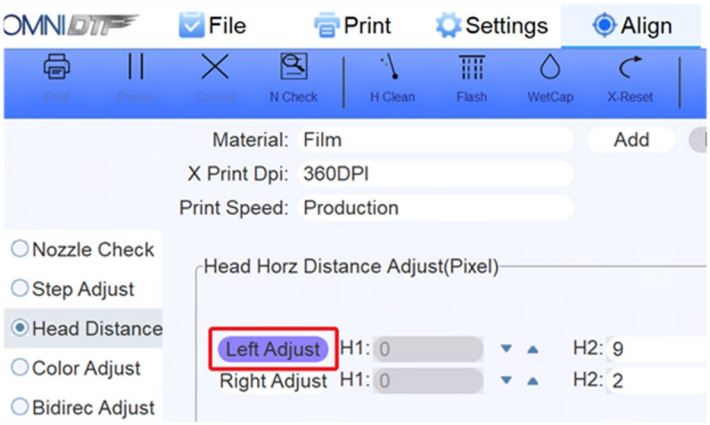
Left Horizontal Distance

There are two horizontal distance adjustments under the Head Horz Distance Adjust heading. This is because your OmniDTF prints bidirectionally, so the white and CMYK printheads need to

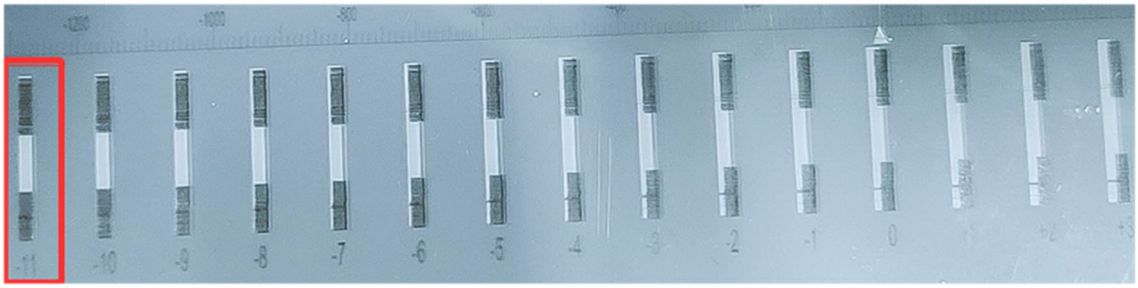
be aligned in both printing directions. The Left Adjust is used for the horizontal alignment when the carriage is moving from right to left, and the Right Adjust for when the carriage moves from left to right.

The process and test patterns for both the Left and Right printhead horizontal distance alignment adjustments are identical. The instructions will call out the Left Adjust button and H2 field, and you will follow these same steps modified for the Right Adjust button and H2 field for the Right Horizontal Distance Adjustment.

1. Click the *Left Adjust* button to run a test print.



The test pattern prints a series of black & white vertical bars above numbered labels. The numbers range from -12 to +12 with zero in the center position.

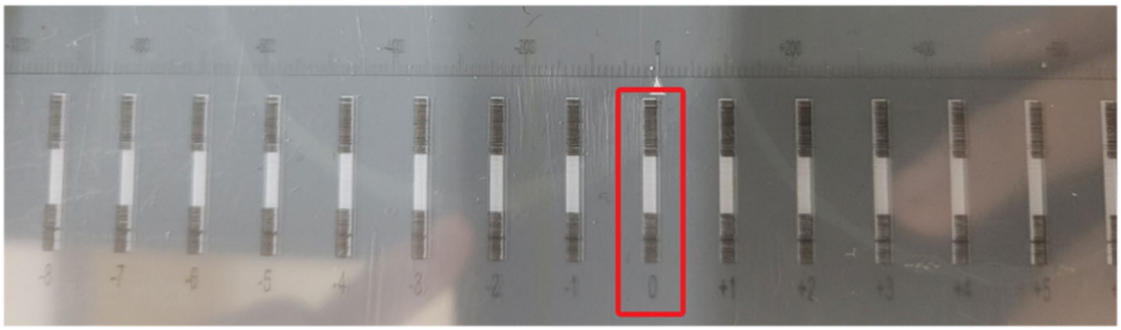


The goal is to have the best-aligned set of black & white bars in the 0 (zero) position. So, our takeaway from the evaluation of the test print is that the column with the best alignment is '-11'.

2. Now let's return to the OmniDTF UI software's *Head Horz Distance Adjust* section and note the current value of *H2*. In our screenshot from step #1 above, the value of *H2* (for the *Left Adjust* line) is "9". The number we got from evaluating the test print was '-11', so we sum together '9' (or '+9', to be exact) with '-11' and enter the result of '-2' into the *H2* field...

...then click the *Save* button.

3. Click the *Left Adjust* button to run a test print again to print another test pattern. This should result in the best-aligned column sitting in the '0' position.



With the 0 (zero) position of the test print showing the black & white segments in perfect alignment, the *Printhead Horizontal Distance Adjustment* (for the leftward motion, in this example) is now complete.

Right Horizontal Distance

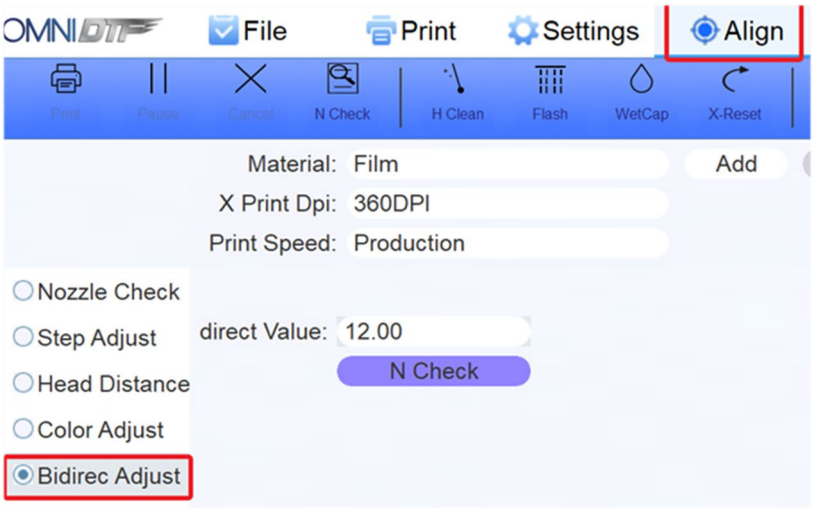
The exact same process as the Left Horizontal Distance Adjustment is used to check and adjust the rightward motion alignment.

Follow the instructions from the above Left Horizontal Distance Adjustment section, substituting the Right Adjust button to run test prints and the Right Adjust H2 field to enter updates to that value, as needed.

Bidirectional

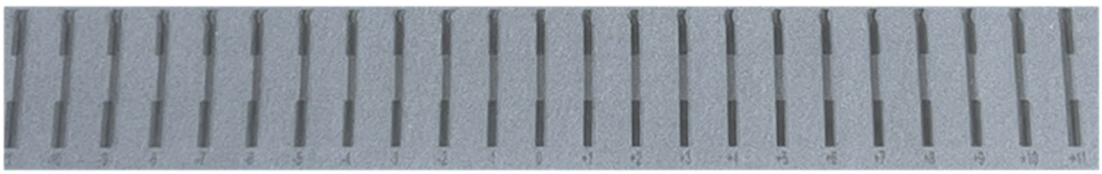
Our final task is to align the printheads during bidirectional printing (both left and right.)

1. Select *Bidirec Adjust* from the options on the left side of the *OmniDTF UI* program.



2. Click on the *N Check* button to print a test pattern.

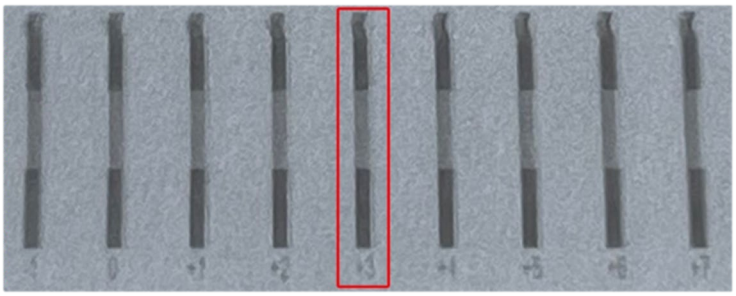
The Printhead Bidirectional Alignment Adjustment test pattern will print.



The vertical bar test pattern has top & bottom black segments and a grey middle segment.

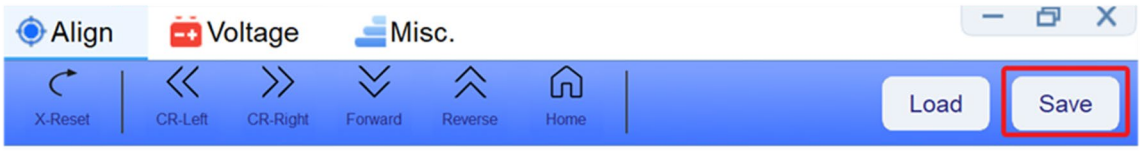
We now want to identify the number under the test bar where the middle segment is best aligned with the top & bottom segments, creating a straight vertical bar with the right & left edges of each of the three vertical segments perfectly aligned.

3. In our example test print image above, the '+3' column is vertically aligned.

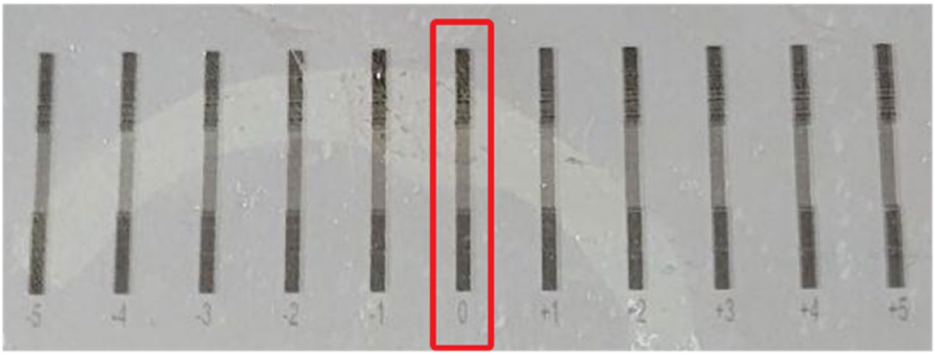


4. Returning to the *OmniDTF UI* program, we take that value ('+3') and sum it with the number in the *direct Value* field ('12.00' in the above screenshot example.) 12+3=15, so we will replace the value of '12.00' with '15'.

...and then click the *Save* button in the upper right corner.



5. Click the *N Check* button again to print another test pattern and confirm that the vertical segments are perfectly aligned at the 0 (zero) position.



With the 0 (zero) position of the test print showing the black & gray segments in perfect alignment, the *Printhead Bidirectional Adjustment* is now complete.

This concludes all four printhead alignment processes: the Vertical Distance, Left Horizontal Distance, Right Horizontal Distance, and Bidirectional Adjustments.

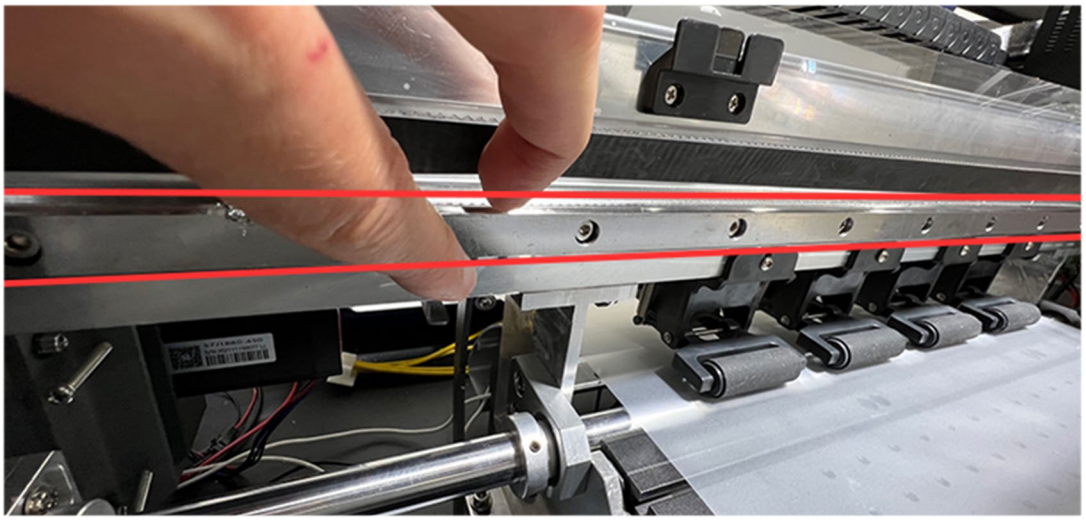
Remember that these adjustments are each made with a specific Print Speed setting, so if you print using different speed selections at different times then you'll need to repeat this process for each speed that you use.

If you find that no alignment adjustments are needed for two consecutive bi-weekly periods, you may wish to change your frequency of printhead alignment checks to monthly.

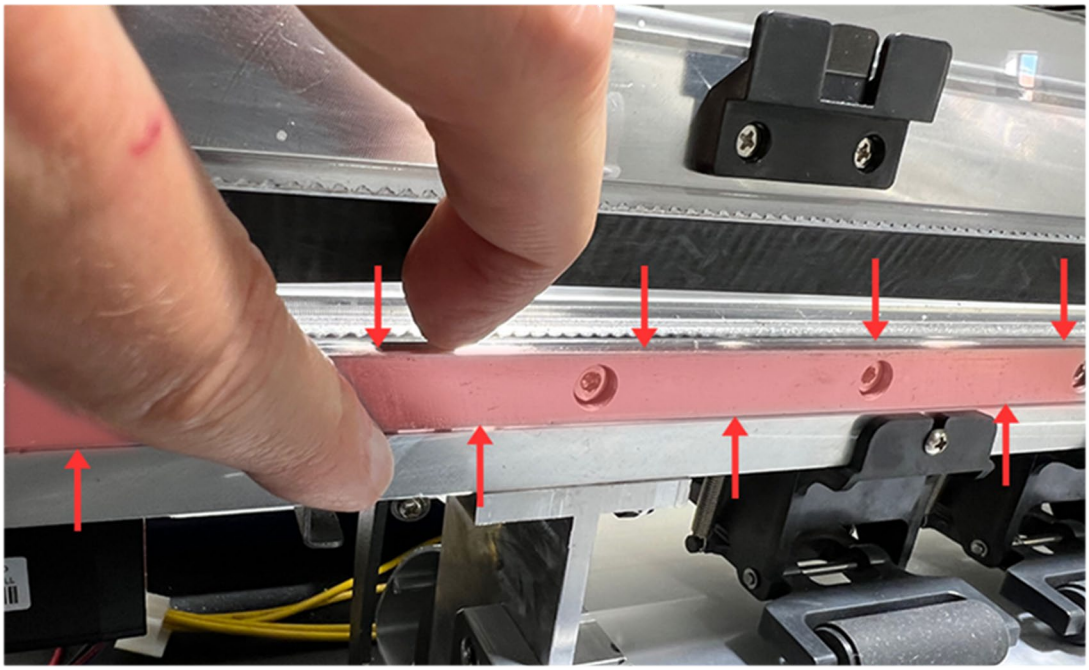
Monthly Maintenance

Clean and lubricate the top and bottom surfaces of the carriage rail to keep carriage movement free and smooth.

1. Tilt the printer's top cover open and remove the front windows to ease access the carriage rail inside of the chassis.
2. Wipe down the top, bottom, and front face of the carriage rail with a clean, lint-free cloth to remove any dust and debris that has collected there.



3. Apply a few small dabs of blue grease to the top, bottom, and front surfaces of the rail.



4. Use the printer's *Carriage Left* button to move the printhead carriage to its extreme left position, then apply a bit more of the blue grease to the top, bottom, and front surfaces of the section of rail that was previously hidden behind the carriage.

5. Use the printer's *Carriage Left* & *Carriage Right* buttons to move the printhead carriage back and forth across the full width of the rail several times to spread out the grease across the full width of the carriage rail.

6. Return the carriage to its *Home* position using the *Carriage Right* button, or wet cap the printer if you will not be printing.

Annual Maintenance

Empty and clean the white ink bottles and flush the white ink lines to remove any pigment sediment accumulating on the bottom of the bottles or in the lines.

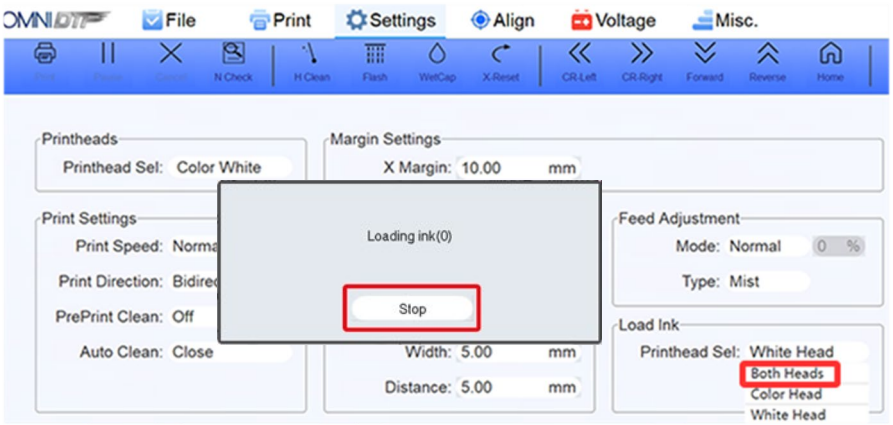
⚠ *To protect your warranty and prevent accidental damage to your equipment, Omniprint recommends making an appointment with our tech support team to have an expert walk you through the process of flushing out the white ink system over a video call or perform the maintenance for you as part of an onsite preventative maintenance visit.*

To schedule an annual maintenance call, send an email to support@omniprintonline.com or call 855-373-3538, option #2.

Head Strike First Aid

If you believe a head strike has occurred, take the following steps to give you the best chance of a full recovery, *monitoring the waste ink bottle* and, as always, emptying it as needed.

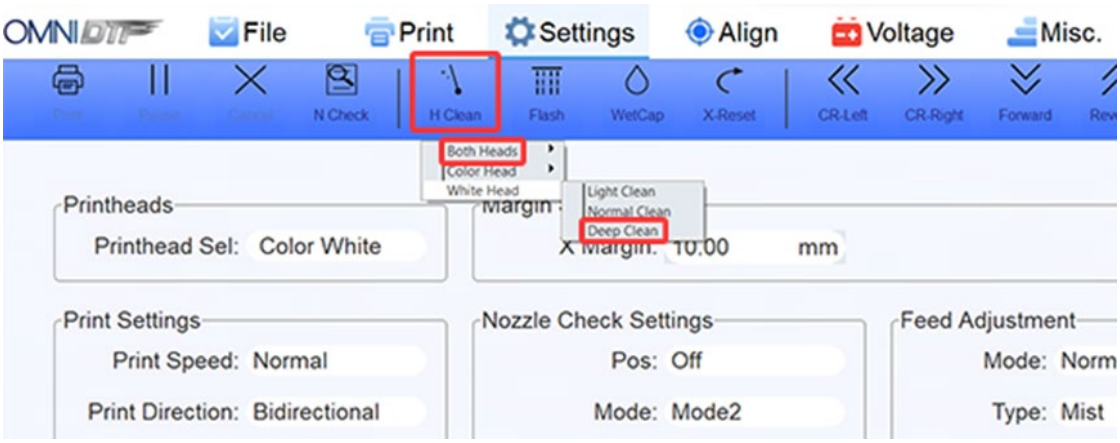
1. Use the OmniDTF UI software to Load Ink on both printheads for about 5 seconds to help push out any contaminants which may have landed on a nozzle, then click *Stop*.



2. Wet cap the printer in Super Nozzle Cleaner for 1-2 hours.

3. Remove any obstruction to free movement of the printhead carriage and adjust the film, if needed to ensure that it lies flat.

4. Use the OmniDTF UI software to run a head clean, choosing the Deep Clean option.



5. Print a nozzle check to confirm that all ink channels are printing fine.

If the nozzle check is good, proceed with printing.

If the nozzle check is not good, repeat the above steps. Contact Omniprint support if you still can't get an acceptable nozzle check.

Understanding Consumables

Like any piece of business equipment, the OmniDTF system includes some parts that must be maintained and parts that must be periodically replaced over time. These parts requiring periodic replacement are known as “consumables”. Replacement of consumable parts is not covered by the warranty (except in the rare case of defects that occur in brand new equipment) and should be factored into your annual maintenance costs as a normal cost of doing business.

We recommend keeping spares of consumable parts on-hand, such as the examples below, to minimize downtime when they do need to be replaced.

OmniDTF Damper

Part number P-DTF3020

The dampers (one on each ink line) are positioned between the main ink lines and the short tubes connecting to the printheads. Dampers ensure a consistent supply of ink to the printheads and contain a fine metal mesh to filter the ink. Recommended 6-month replacement schedule.

OmniDTF Wiper Blade

Part number P-DTF6001

The wiper blade keeps the surface of the printhead plates clear of excess ink and is critical for preventing build-up of ink at the surface of the nozzles, which can lead to printhead clogging. Replace the wiper blade if it is damaged or can’t be cleaned to a smooth edge.

OmniDTF Capping Station

Part number P-DTF4086

The capping stations (one for each printhead) create a seal against the printhead plates during head cleans and ink loads. Keeping the rubber seals of the capping stations clean and free of ink buildup to ensure that the seal is airtight is part of the routine shutdown maintenance.

Ink Clip

Part number P-MC1001

The ink clips (one on each ink line) keep the ink lines fully loaded with ink when the printer is not in use, and prevent air from entering the white ink lines when white ink is circulating. Recommended bi-annual replacement schedule to prevent breakage as they become brittle.

OmniDTF Encoder Strip

Part number P-DTF6002

The encoder strip can last indefinitely when carefully cleaned as part of the routine scheduled maintenance. If the encoder strip is damaged (e.g., torn, bent, stained) it will need to be replaced. Physical damage to any part, consumable or otherwise, is not covered by the warranty.

Troubleshooting

Print Quality Troubleshooting

Symptom: The White underbase is visible at edges of the design.

This general symptom description can have multiple potential causes and solutions, so we'll break it down with a few more specific symptoms to get you to the solution for each possibility.

A white outline appears at the edges of the entire design

Solution: Confirm the printer heaters' temperatures and the white underbase choke

This type of "halo" effect has one of the following causes:

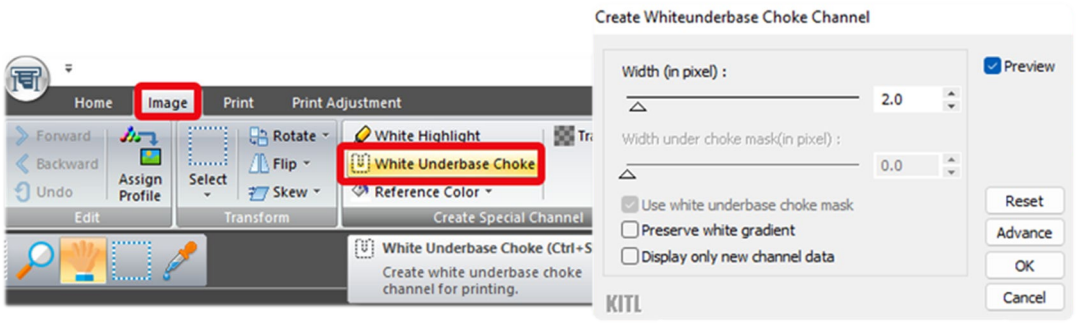
- The platen heaters are off or set to too low of a temperature
- The *white underbase choke* setting of the *Print Pro* software is missing (a choke wasn't created) or its value needs to be increased

Let's check the temperature of the printer's heaters first to ensure that they're properly set up to keep the film supple and set up the CMYK layer to be ready to take the white ink on top of it.

The front heater should be set to 42 Celsius and the rear heater to 50 Celsius. See *Set Temperatures of the Printer's Heaters* in the *Adjustment Tips* section if you need a refresher on how to adjust those settings.

If that didn't solve the problem, let's check the white underbase choke.

The default value of the white underbase choke is 2 pixels, but the choke doesn't get added automatically. It must be selected from the *Image* toolbar. Then once selected you can accept the default of 2 pixels or enter another number of pixels to be used in the *Width* setting shown below.



If no white underbase choke had been set when the problem occurred, then simply setting one with the default value of 2 pixels is very likely to resolve the issue.

If the white underbase had already been set, then try bumping it up to 1-2 pixels higher. Go up to 4 pixels, if needed, but if that doesn't eliminate the white outline contact tech support.

Poor vertical alignment between white & color layers

Vertical alignment problems appear as a white ink "shadow" at either the top or bottom edges of a print, but not on both the top *and* bottom (and not on the sides.) We're referring specifically to the top or bottom of a *print* as it moves through the printer, not necessarily to top or bottom of the *image design*.

We make this distinction because *Print Pro* may rotate designs to make best use of the film space, so the vertical axis of the design may be the horizontal axis of the print. The vertical alignment always refers to the top & bottom of the film rather than an image.

Vertical alignment issues can be either very consistent or somewhat randomly inconsistent, depending on the cause.

We'll first cover addressing a completely *consistent* vertical offset between the color and white layers that appears on all prints of any design (even though the issue may appear more pronounced on designs with horizontal edges, such as block lettering.)

If your prints have a *random* or *inconsistent* vertical alignment issue, this is a different symptom with different solutions and will be covered later in this section.

Consistently poor vertical alignment

Solution: Align the printheads

When the color and white ink layers are very consistently out of alignment on the vertical axis (top to bottom of the film) on all prints, this indicates that the printheads need to be aligned.

Follow the directions for *Head Vertical Distance Adjustment* which can be found in the *Bi-Weekly Maintenance* part of the *Routine Maintenance* section.

Inconsistent vertical alignment issues

Solution: Set proper film feed roll tension

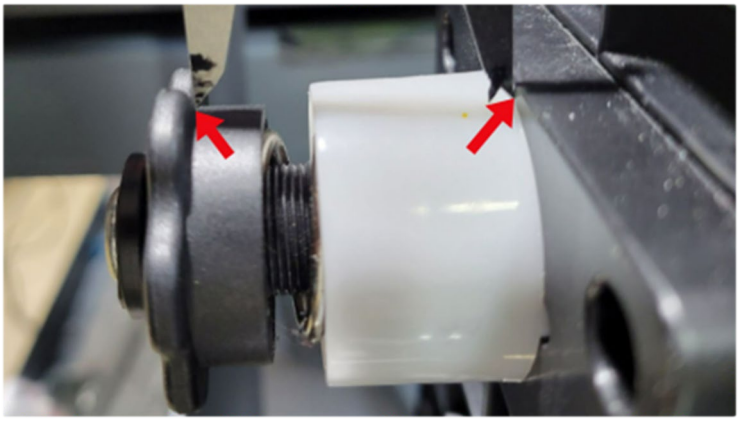
A bit too much resistance to advancing the film from the roll on the back of the printer can lead to an inconsistent amount of film feeding onto the platen.

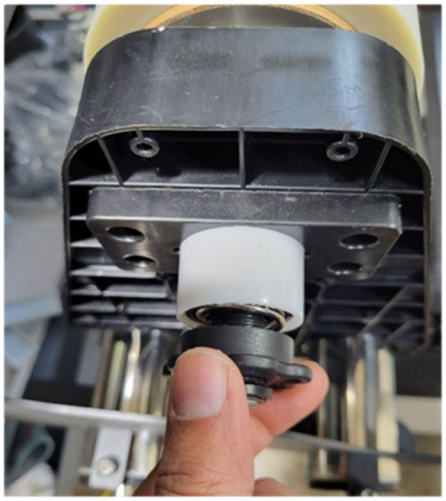
Confirm that the tension of the film roll mounted on the rear of the printer is properly adjusted to ensure minimal friction on both sides (left and right)

1. Measure both knobs from the inside edge of the white plastic to the inside edge of the knob's handle. The measurement on both ends should be in close range to each other -- approximately 35 mm or 1-⅜", though it can vary. The goal is to find the point of minimal friction on each end.

2. Rotate both tensioner knobs in either direction to find the lowest resistance point on both.

Turning counterclockwise doesn't continually loosen the tension. If you've passed the lowest tension point, continuing to turn in the same direction will increase the tension.





Printing Process Troubleshooting

Symptom: DTF Powder not fully melting in the curing oven

Solution: Calibrate the curing oven temperature to match the print job conditions

A slightly powdery texture on the extreme edges of wide prints will not typically affect the transfer if the rest of the print is well-cured. However, if your prints coming out of the curing oven don't have a glossy look and you can rub powder that hasn't fully melted from the film, the temperature setting is too low for the design you're printing and the print speed.

Turn up the temperature in increments of 5 degrees Celsius until cures have a proper glossy look and tacky feel throughout the print. For example, if the temperature is set to 120 degrees when warping occurs, change the setting to 125 degrees (120+5) and run a test print. If the cure is still incomplete, raise the temperature another 5 degrees and test again.

Don't set the temperature higher than 160 degrees Celsius. If you get incomplete cures at that setting, contact Omniprint for assistance.

See the *Calibrating Temperature Calibration* part of the section of the *Print Automation Management* section for more details, including step-by-step directions to save a print with an incomplete cure.

Symptom: Film is skewing

Solution: Center film on the bridge and align the feed roll

If the film is skewing either the feed roll isn't properly aligned, the feed roll's tension needs to be adjusted, the film needs to be centered on the bridge between the printer and the *Dust-Curing Machine,* or some combination of these adjustments needs to be made.

See the *Confirm Proper Film Alignment* instructions in the *Adjustment Tips* section for details on how to make these adjustments.

Symptom: Print Pro says it is printing but the printer isn't doing anything

Solution: Confirm Ethernet connectivity and software configuration

Start by checking to see if the *OmniDTF UI* software can communicate with the printer.

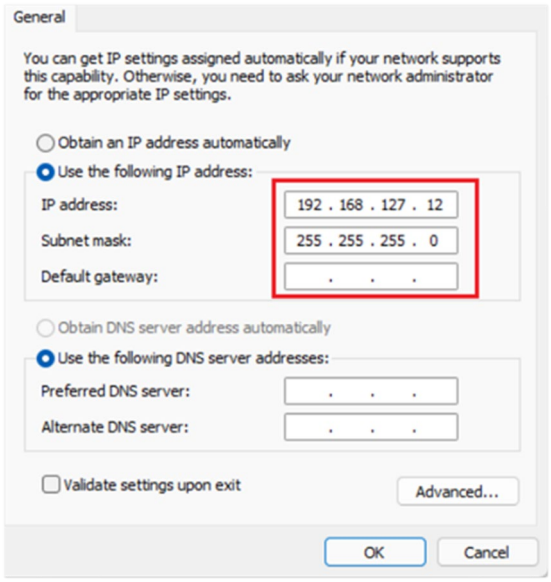
If the link icon in the lower-left corner of the *OmniDTF UI* program is green, skip down to the *Run Print Pro as Administrator* section. If it is *not* green, take the following steps.

1. Confirm that an Ethernet cable is connected between the printer and the PC.
2. Confirm that the OmniDTF UI software displays a 'Loading Parameters' window when the printer starts up. If not, close and reload the app, then restart the printer.
3. Confirm the 'Device Ready' message in the lower-right corner

If the link icon is now green, try printing again and skip ahead to the *Run Print Pro as Administrator* section if print jobs still aren't being received by the printer. Otherwise, follow these steps to check the Windows and *OmniDTF UI* Ethernet configuration settings.

Windows Ethernet configuration

Check the TCP/IP configuration for the Ethernet adapter. If you're familiar with Windows Control Panel feel free to simply confirm that the settings for your Ethernet interface match those shown here. Step-by-step instructions follow for those less familiar with these settings.



1. Run Windows' *Control Panel*.
2. Go to the *Network and Sharing Center*.
3. Select *Change adapter settings.*
4. Double-click the Ethernet adapter being used to go to its *Properties.*
5. Double-click on *Internet Protocol Version 4 (TCP/IPv4).*

6. Click the '*Use the following IP address'* radio-button and set the following parameters, then click 'OK'.

    IP address: 192.168.127.12 (the last two digits can be anything *except* '10')
    Subnet mask: 255.255.255.0
    Select "radio button" labeled *Use the following DNS server addresses*
    All other fields are left blank.

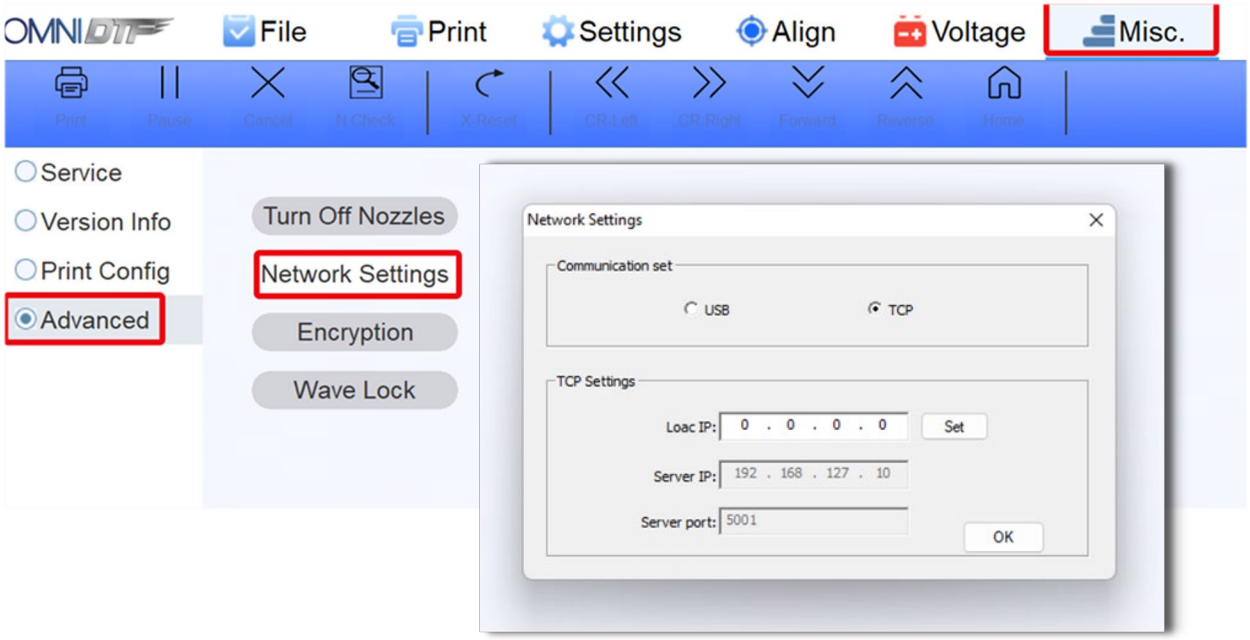
7. Click 'OK' to save the settings and close the Ethernet Properties window

If you had to make any changes to match the Ethernet settings provided above, try restart the *OmniDTF UI* program and reset the printer's power. If the link icon is now green, try printing again to see if the problem is solved.

If the link icon is now green but the printer still isn't receiving print jobs, skip down to the *Run Print Pro as Administrator* section. If the link icon still is *not* green, continue with this process.

OmniDTF UI Ethernet Configuration

In the OmniDTF UI program, select the *Misc.* tab in the top-right area of the window, then select *Advanced* and *Network Settings*, as shown in the below image.



If the *Network Settings* for your installation of the *OmniDTF UI* software don't match those shown above, reinstall the software or contact OmniPrint support for assistance.

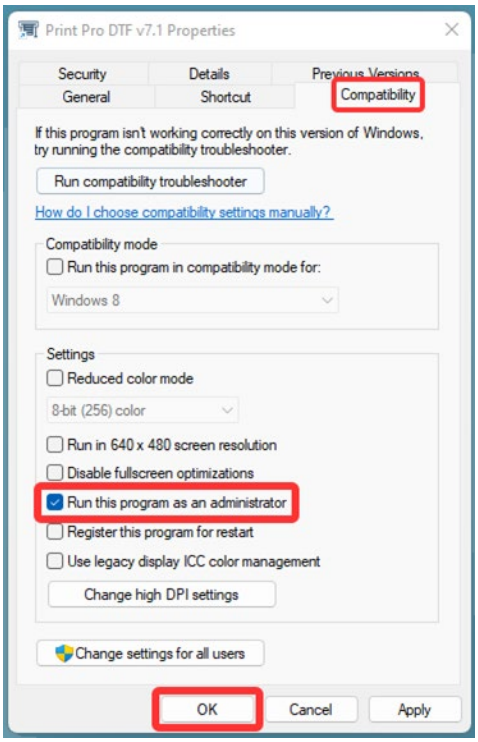
If your settings match all those shown above, your Ethernet configuration options are all set correctly. We have just a couple of additional things to check.

Run *Print Pro* as Administrator

Print Pro may have previously been configured to "Run as Administrator" during your training session, if there were possible conflicts with any anti-virus software. If that setting has somehow changed then it should be reinstated. Here's how to check and set it, if needed.

1. Right-click on the *Print Pro* icon used to launch the program, then select *Properties*.

2. Select the *Compatibility* tab.
3. Make sure the checkbox for *Run this program as an administrator* is checked.
4. Click *OK* to save the setting

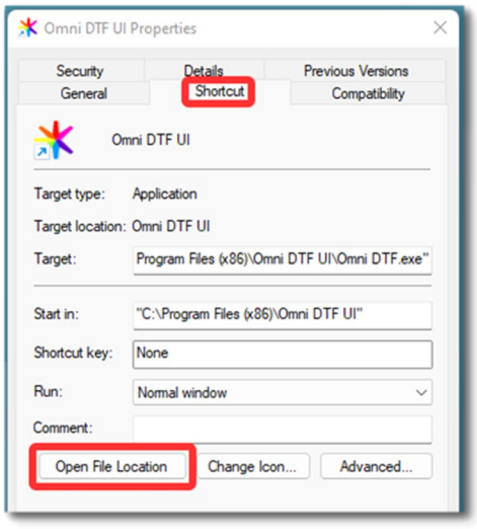


If the *Run this program as an administrator* box was not already checked, try another test print to see if this has solved the problem.

If the printer still isn't receiving print jobs from the Print Pro software, continue to the *Setting the OmniDTF UI File Properties* steps below.

Setting *OmniDTF UI* Related File Properties

There are two more files that we want to confirm are set to *Run as administrator*. The process to check and set them will be slightly different because they don't both have shortcut icons from which we can directly edit the *Properties.* But it's essentially just one extra step to get to the location of the files, and the following step-by-step instructions will get you through the process very quickly.



1. Right-click on the *OmniDTF UI* icon used to launch the program, then select *Properties*.
2. Click on *Open File Location.*

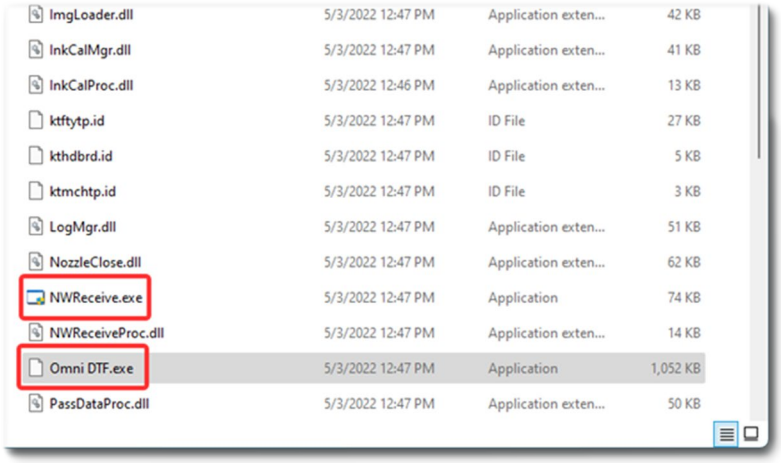
A new File Explorer window will open with the folder containing the OmniDTF UI program files, and with the "Omni DTF.exe" file selected.

The name of the folder will vary, but the list of files will be the same as the partial list shown below.

The ".exe" part of the filename may not appear in your File Explorer window, depending on how your View of files is configured.

Perform the remaining steps of this process for both “Omni DTF.exe” and “NWReceive.exe”.

3. Right-click on one of the filenames *(Omni DTF.exe* or *NWReceive.exe)*.
4. Select *Properties*.
5. Select the *Compatibility* tab.
6. Make sure the *Run this program as an administrator* box is checked.
7. Click *OK* to save the settings for this file.



Repeat steps 3 – 7 for the other file *(Omni DTF.exe* or *NWReceive.exe)*.

With both file properties updated to run as administrator, we have now made all configuration changes that can impact the ability for the OmniDTF printer to receive print jobs from Print Pro.

If print jobs sent from Print Pro are still not printing, please contact Technical Support.

Resources

Congratulations on your purchase of the best DTF system in the business!

The OmniPrint team is continuously working to provide the most innovative and useful tools and information for you to run a prosperous business. We want you to be successful!

OmniPrint Knowledge Base

Whether you're looking for a deep dive into details of your OmniDTF system, want to keep an eye an any updates that we have for getting the most out of your system, or just need to review the operational steps for a routine process the OmniPrint Knowledge Base is your 24 x 7 x 365 starting point for technical tips, documentation, downloads, and "how to" articles.

 **Knowledge Base Homepage:** kb.omniprintonline.com

 **OmniDTF Knowledge Base Articles:** kb.omniprintonline.com/kbtopic/omnidtf

If you have any questions, issues, or concerns that aren't resolved by our knowledge base – or if you just prefer to speak with an expert, rest assured that OmniPrint staff are here to help.

OmniPrint Training

Even those with extensive printing experience can sometimes benefit from specialized knowledge of DTF processes and OmniDTF equipment. Besides the complimentary training provided to every new customer, we also offer supplemental training sessions in 2-hour blocks which can be customized to meet your individual needs.

For help ordering additional training, contact your sales rep or reach out directly to our Training Department by telephone or email:

 **training@omniprintonline.com**

 **855-373-3538 or 949-484-4181, option #4**

OmniPrint Technical Support

OmniPrint technical staff are available to aid with technical issues of all sorts, both during the warranty period, and with a pre-paid extended warranty agreement or single-solution basis.

We offer remote technical support over video calls, on-site services at your location, and an option for having your equipment repaired at one of our repair shops in California or Florida.

 **support@omniprintonline.com**

 **855-373-3538 or 949-484-4181, option #2**

Glossary

Air purifier: A device with an electric fan and filters that draws in air and purifies it through filtering before releasing it back out.

Alignment, Film: Positioning of film to ensure smooth travel throughout its path through the OmniDTF printer and Dust-Curing Machine.

Alignment, Printhead: OmniDTF UI software process to ensure that the two printheads in the OmniDTF printer are properly aligned so that the white underbase prints in exactly the same position as the full-color design.

ARM/RISC: A type a microprocessor based on a reduced instruction set computer (RISC) architecture. ARM stands for Advanced RISC Machine. While they are rare, there are ARM-based PCs that run a special version of Microsoft Windows designed specifically for them. These ARM-based Windows PCs *cannot* be used with normal Windows applications, including the OmniDTF Ui and Print Pro RIP software.

Blue Grease: A lubricant available directly from OmniPrint used on the OmniDTF printer's carriage bar as part of routine maintenance. No other lubricant should be used for this purpose.

Bridge: Connecting piece between the OmniDTF printer and its Dust-Curing Machine.

Capping Station: A rectangular device that is used to draw ink during head cleanings and to protect the printhead when not printing. Also see *wet cap*.

Capping Station Seal: A piece of rubber the runs around the circumference at the top of capping stations. This rubber seal presses against the printhead plate to provide an air-tight seal when running head cleans and wet capping the printer.

Carriage: The moving assembly that transports the printhead, dampers, and associated parts back and forth across the width of the *platen* when printing and for routine maintenance tasks.

Carriage Bar: A sculpted rectangular bar on which the *carriage* is mounted and travels upon.

Carriage Home: See "Home".

Celsius: The metric scale for temperature measurement. All heat measurements of the OmniDTF system are set and reported in Celsius values. *(Celsius temp x 1.8) + 32 = Fahrenheit temp*

Choke: See *white underbase choke.*

Clip: The *ink clip* is a small, plastic device used to clamp off ink flow on individual ink channels – between each ink bottle and its damper.

CMYK: The color model used in full color printing, based on any combination of the four colors of cyan, magenta, yellow, and black.

Consumable: This term can refer to supplies that are consumed relatively quickly (ink, film, DTF Powder) and also to parts that require occasional replacement due to normal wear and tear. Consumable parts are not covered by the warranty, such as the oil and tires of a car.

Control Pad: A set of pressure-sensitive buttons on the OmniDTF printer.

Control Panel: A set of switches and rotary controls on the OmniDTF's Dust-Curing Machine.

Cure: In DTF printing, melting the DTF Powder (glue) onto the ink is how prints are cured, making them ready to be transferred to a garment with a heat press.

Curing Oven: The OmniDTF Dust-Curing Machine's enclosed heating elements that the printed film is transported through to cure the print on its way to the take-up roll.

Curing Oven Lid: The hinged cover of the curing oven, which is closed when printing and may be lifted to avoid melting film when printing is paused.

Damper: The dampers (one on each ink line) are positioned between the main ink lines and the short tubes connecting to the printheads. Dampers ensure a consistent supply of ink to the printheads and contain a fine metal mesh to filter the ink.

Dongle: A device that is plugged into a USB port on a PC to provide some enhanced functionality, such as the security key dongle used to confirm authorization to run the Print Pro software.

Downsize: In computer graphics, to downsize an image is to reduce its dimensions, resulting in a smaller print size.

DTF: Direct to Film – The process by which digital images are printed onto film and cured with DTF Powder (melting the glue powder) to prepare the print for transfer to a garment using a heat press.

DTF Powder: A proprietary adhesive powder used to cure DTF prints and bond them to garments during the transfer process.

DTF Powder Feeder: A rectangular compartment at the front of the OmniDTF Dust-Curing Oven assembly where DTF Powder is loaded and distributed from onto the printed film.

DTF Powder Recycle Bin: A removable catch tray that collects excess DTF Powder below the Dusting Chamber, to be recycled by manually pouring the contents back into the DTF Powder Feeder.

DTF Powder Shaker: A set of fins rotating on a variable-speed spindle which slap against the back of printed film after DTF Powder has been applied to shake off any excess DTF Powder.

Dust-Curing Machine: The assembly connected to the front of the OmniDTF printer by metal bridge pieces, providing the DTF Powder dusting, shaking, and curing functions.

Dusting: The process of coating the wet ink of a fresh print with DTF Powder.

Dusting Chamber: The open area on the Dust-Curing Machine between the Powder Feeder and the Curing Oven, where DTF Powder is applied, and excess powder is shaken off. The open bottom of the Dusting Chamber is immediately above the DTF Powder Recycle Bin.

Emergency Stop Switch: A large red button that, when depressed, cuts power to all functions of the OmniDTF printer or the Dust-Curing Machine (both devices have an Emergency Stop Switch.) This is a “latching switch”, meaning that it will remain depressed and will deactivate its device until the switch is rotated clockwise about 45-degrees (1/4 turn). The switch includes a spring which will pop it back out when the switch is rotated, so normal operation of the equipment can be resumed.

Encoder Strip: A thin, translucent plastic strip covered with very small vertical markings which runs the full width of the carriage. The markings are read by a sensor on the carriage and used by the printer to track the carriage’s exact position.

Environment (Print Pro software): A collection of settings (presets) which are automatically all loaded when a particular Environment name is selected when creating a new Layout, to bypass the complexity and opportunity for error if all these settings had to be manually selected.

Ethernet: A communication protocol for the physical layer of the OSI networking model. The OmniDTF use of Ethernet is strictly a point-to-point connection between a PC with the printer acting as a host. The OmniDTF is *not* to be connected to a networking router of any kind – only directly to a PC.

Feed Roll: The roll of unprinted film mounted onto the back of the OmniDTF printer.

Film Heater Controller: See “Heater Controller”.

Film Roll Mount Assembly: The bracket assembly holding the feed roll of film and associated adjustment controls for laterally positioning the roll and setting the tension of rotation (which should be at its minimum).

Film Sensor: A light-sensitive sensor near the bottom of the Dusting Chamber that detects when film is in front of it and signals the Take-Up Roll motor to pull film onto the Take-Up Roll. The motor activates only when this sensor signals the presence of film.

Flash: The Flash feature of the OmniDTF causes the printheads to spray a small amount of ink into the capping stations periodically, as a nozzle cleaning step. Omniprint disables this feature and recommends that it be kept off (in *Unflash* mode) to conserve ink as the Head Cleaning option is always available for use on-demand.

Foam Cleaning Swabs: Anti-static, lint-free swabs useful for cleaning the wiper blade and rubber seals on the capping stations.

Friction-Feed Rollers: A set of rollers on a motor-driven spindle that pinch the film against a passive lower roller such that when the friction-feed rollers rotate the film is pulled from the feed roll and pushed onto the platen (and into the Dust-Curing Machine).

Gamut Hybrid Ink: Omniprint's proprietary ink formulation optimized for use in both the OmniDTF and i2 printers.

H.Clean: A button on the top toolbar of the OmniDTF UI program used to initiate cleaning the printhead (head cleaning), which allows selection of a single or both printheads as well as a light, normal, or heavy clean (using the least to most a mount of ink.) Light cleaning of both heads is recommended unless troubleshooting ink flow issues with specific ink lines.

Head Cleaning (definition): Head cleaning is the printer's automated process for cleaning the printhead by pulling some ink through the nozzles and rubbing the printhead plates against the wiper blade.

Head Cleaning (button): A button on the printer's Control Pad which triggers a light head cleaning on both printheads.

Head Strike: This term refers to a printhead contacting anything other than a wiper blade or capping station seal.

Heat Press: An electronic device used to precisely heat and press garments with variable temperature and pressure controls. Used in to transfer printed and cured images to garments.

Heater Controller: A combination of pressure-sensitive buttons and numeric displays on the front-left area of the OmniDTF printer, used to monitor and change the temperature settings of the printer's front and back heaters to warm the film before and during printer.

Home: The position of the carriage when the printer is idle, at the right edge of its travel and directly above the *capping station*.

Ink Clip: A small, plastic clamp that is used to pinch off the ink lines just above the dampers when the printer is not in use (and on the white ink lines when circulating the white ink).

Ink Load: A button in the *OmniDTF UI* software used to draw ink on-demand from the ink bottles, through the printheads and into the waste ink bottle. Primary used to fill the ink lines of new printers when they are being set up for the first time.

IP Address: A unique set of digits identifying each device communicating with each other using the Internet Protocol (IP).

Layout: A feature of the Print Pro RIP software that supports loading multiple images into a single print job, automatically positioning them to make efficient use of the film, and provides a graphical representation of how the images will be positioned when printed onto the film.

Manifold: See *White Ink Manifold*

N.Check: Abbreviation for "Nozzle Check", as displayed as a toolbar button in the *OmniDTF UI* program.

Nozzle Check: A printed test pattern used to demonstrate and evaluate a printer's readiness to do production work. The nozzle check test pattern forms a box for each

NWReceive: An executable file that is part of the *Omni DTF UI* program installation that supports Ethernet communications and is configured to *Run as administrator* during the setup process.

Pinch-Feed Rollers: A set of rollers mounted onto a rotating spindle that press the film against a bottom roller (or "pinch" it between the rollers) to feed the film forward as the spindle rotates when printing. The spindle rotates in both directions to also support feeding the film backward or forward using buttons on the printer and in the *OmniDTF UI* software.

OmniDTF UI: The software used to control and communicate with the OmniDTF printer. "UI" is an abbreviation for "user interface", a term used to reference how operators interact with the printer.

Pixel: The smallest unit *(picture element)* of a digital graphic that can be represented on a screen or print at a specific color and intensity. *-Wikipedia*

Platen: The flat area immediately in front of the pinch-feed rollers where ink is applied to the film during the printing process, as the printhead carriage travels back and forth above the surface of the film.

Platen Vacuum: A feature of the OmniDTF printer which draws air downward into the platen to help keep the film flat against the platen as it feeds through the printing process.

Print Pro: The RIP software that is included with each OmniDTF printer.

Printhead: An electronic device with thousands of tiny nozzles which precisely dispense ink to print images. The OmniDTF has two printheads – one with four channels of white ink only and another with one channel for each of the CMYK colors.

Printhead Carriage: A transport assembly that carries the printheads and associated components back and forth across the full width of the printing area and through its full range of motion.

Printhead Cleaning: An automated process that pulls some ink through all printhead nozzles to keep them clear of clogging and uses the wiper blade to remove excess ink from the printhead.

Prime: In the context of printing and specifically the OmniDTF, to prime the ink is to use a pump to pull ink from the rear-mounted bottles into the ink lines, through the dampers and printhead, and to the waste ink bottle.

Radio Button: The name given to the small, round, clickable Microsoft Windows user interface element used to allow only one selection for a set of options.

Resize: In digital images, changing the dimensions of an image to make it larger or smaller than its original design.

RIP: A type of software (Raster Image Processor) that processes image files to create a printable raster (or bitmap) image based on parameters defined by the user. The term “RIP” may also be used as a verb as in, “Did you RIP the file yet?”

Shaking: In DTF printing, shaking film after it has been printed on and had DTF Powder applied to the ink, to remove excess powder before curing.

Shaker: The OmniDTF’s rotating assembly and associated controls that automate the shaking process to remove excess DTF Powder immediately before printed and dusted film enters the curing oven.

Shipping Bracket: A yellow bracket connecting the printhead carriage to the carriage bar, to ensure that the printheads stay protected in their Home position above the capping station during transit.

Skew: Referring to the orientation of film in relation to the printer, bridge, and Dust-Curing Machine, if the film is well-aligned it moves straight through the path but if it isn’t fully aligned then it will slant or *skew* and progressively move a bit sideways over time to the left or right.

Status Display: The LCD display at the top of the OmniDTF printer’s Control Pad.

Super Cleaner: Omniprint’s proprietary cleaning solution for performing some routine maintenance, including wet capping.

Super Nozzle Cleaner: Omniprint’s proprietary solution for addressing poor ink flow through and clogging of printhead nozzles.

Take-Up Roll: The core and film roll on the back of the Dust-Curing Machine where cured prints are stored.

TCP/IP: Transmission Control Protocol, a part of the Internet Protocol, is a connection-oriented communication protocol for communication between electronic devices. The OmniDTF uses TCP/IP to communicate between the PC and printer, but not over any network including the Internet.

Thumb Drive: A small, solid-state USB storage device used to distribute and/or transfer files.

Underbase: See *White Underbase*.

Unflash: See *Flash*.

Upsize: The form of image resizing that expands the dimensions of an image when printed. When working with raster or bitmap images, upsizing degrades the image quality somewhat as curves become more jagged, so is generally not recommended except in very small proportions.

USB Hub: An electronic device that plugs into a single USB port and provides multiple USB ports for other devices to be connected to, effectively splitting a single USB port into many.

USB-A: The original rectangular, non-reversible USB port commonly found on computers.

USB-C: A thinner (than USB-A) and reversible USB port which supports higher communication rates and more operational modes than USB-A devices.

Waste Ink: A mix of inks to be disposed that have been pulled through the capping stations during ink loading and head cleaning operations.

Wet Cap or Wetcap: A simple but critical process to keep the printhead plate moist and protected while idle, bathed in a cleaning solution held in the capping stations, with an air-tight seal between the printhead plate and the capping stations' rubber seals.

White Ink Circulation: The act of pumping white out of the white ink bottle, through the ink lines and white ink manifold (above the dampers), then back into the white ink bottle. This should be done at the beginning of each printing day to help keep the white ink's pigment well-mixed and ensure that it is opaque.

White Ink Manifold: A small, rectangular plastic part with one white ink line input, four white ink outputs that feed to the white ink dampers and printhead (when the white ink clips are open), and one return line that sends white ink back to the white ink bottle when circulating white ink (with the white ink clips shut).

White Underbase: The white underbase, sometimes simply referred to as the underbase (it's *always* white) provides a layer of white ink to neutralize the shirt or fabric color, that will sit between the fabric that the print is ultimately transferred to and the color layer of inks used to print the design.

White Underbase Choke: For DTF and DTG purposes, the *white underbase choke* is defined as a few pixels (usually '2') by which the borders of the white underbase are reduced (by the RIP software) to prevent the appearance of a white outline from the underbase showing at the edges of the printed design.

Wiper or Wiper Blade: A thin, rectangular rubber piece with a curved edge peak that acts as a squeegee to wipe excess ink off of the printhead plate during head cleaning.

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