



## What They Say

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For many companies in the print industry, the world of digital dye sublimation textile printing is a relatively new technology. It is a technology that many are still researching in an effort to become educated around the best way to use and invest in this growing market. As we know, reliable information is hard to come by and one can find statements that span the entire spectrum of reliability; from false to accurate. This document is provided to offer some facts and clarity around this subject.

**1) Often, discussions about sublimation printing begin with the following statement: "Sublimation printing is not as straightforward as UV / Latex printing. There are many variables that affect the final outcome."**

**This is true, and there are in fact three primary steps to direct sublimation fabric:**

- a) printing the fabric**
- b) sublimation of the fabric**
- c) finishing**

*These are the steps that are generally used, but there is another more innovative way for those who are willing to think outside the box beyond how things have been done in the past.*

*In 2019 a multinational printing company (HP) released inks for sublimation printing that they claimed were highly innovative. The innovation, is that these inks are suitable for working on their existing thermal heads, which is beneficial for them, but holds no specific benefit for the end user.*

*With the ATP Direct to Fabric Printer, these three steps are simplified down to just two: Print and Sublimation in one process, and finishing, making the printing part as straightforward as UV, Solvent and Latex printing.*

*Now, for further discussion regarding two step vs. three step dye sublimation printing.*

**2) Direct-to-fabric is almost always the preferred method for flag printing, and this is often the preferred method for backlit as well. For the remaining fabric printing applications, they have historically been done using offline or transfer printing.**

*For flag and backlit printing which are increasingly growing in demand, there is no comparison between direct and transfer printing. Why is direct the preferred choice for flag and backlit? While there are numerous ways to answer to that question, it usually comes down to the speed and accuracy of two step vs single step.*

*During the transfer process the printer prints on transfer paper then takes that paper to an offline calender - a separate piece of equipment - and uses that calender to sublimate to fabric.*

*Direct printing is done when the printer is jetting directly onto the fabric and then processed through a built-in calender, or in some cases an in-line heated coil or activator, to do the sublimation. With the ATPColor line of DFP inline printers, a true calender is built into the printer, allowing the sublimation to be done inline on the same printer, effectively reducing the number of steps it takes to complete the print. By reducing the number of steps needed to complete the print, the effective print speed is increased by at least 40% as compared to an offline calendar process. In addition to minimizing the number of steps that need to be taken when doing inline sublimation, the ATP DFP series also has a roll-to-sheet adapter that improves the efficiencies.*

*Let's think about a typical workflow: If you have 100 prints to complete on a roll of fabric, the first print that is sent will be the last print that is unrolled after completion of all prints. This means that you won't know until all prints are complete, if any prints were color accurate or without error.*

*With the roll-to-sheet adapter, each print can be cut after completion, allowing the user to pull prints for finishing or re-doing if needed, without waiting. So that 40% speed increase doesn't even take into account the fact that the first print you make will be the last available. There are presumably further speed increases and efficiencies in this ATP DFP workflow.*

*When going through the multi-step process of transfer printing, if an error of any kind is discovered after sublimation you have to start everything from the beginning of the entire two-step sublimation.*

### **3) Electrical consumption is a huge factor that many aren't considering in their evaluation of direct vs transfer printing.**

*The ATP 3.2-meter system (PrinterEvolution D3200), is a complete in-line system that integrates the printer and calender. The maximum electrical consumption of this entire system is 13 kW. Many grand format printers, both dye sublimation and other grand format technologies, have a similar consumption but without the integrated calender. When adding a stand-alone calendar as a separate piece of equipment, one needs to consider both footprint and electrical consumption. Stand-alone calendars consume about 40kW of electricity for a 3-meter model, and 70kW of electricity for a 5-meter model. For those who are conscientious about energy savings and environmentally friendly business practices, the ATP Color is the obvious choice. The energy savings of the ATP Color (is at least three times less than a stand-alone sublimation unit and the cost of that electrical savings is equivalent to a monthly lease payment for that calendar.*

### **4) When we consider the trend that all major manufacturers of dye sublimation**

*Printers are developing their new technologies to be direct printers, it is reason to believe that this is very important and should not be underestimated.*

### **5) The sublimation step is a critical and technical part of the process.**

*Just a few degrees of humidity and temperature are enough to change the color of the print. ATP's integrated calendars are designed to be simple, yet accurately coordinated to sublimate for exactly the image they are printing. These calendars are reliable and covered by numerous patents.*

### **6) Some competitors of direct printing use an inline activator rather than a calendar.**

*These are often called "toasters" because they are a simple coil that radiates heats onto the fabric. There is no direct pressure or consistent heat across the surface, and is subject to thermal drafts. This does sublimate the ink to some extent, but true sublimation requires pressure, heat and dwell time for accurate color and permanent results. Crocking (low ink adhesion on the media) often occurs with activators. The activator is neither accurate or highly technical. The ATP calendar is a true contact calender made of real metal covered by numerous patents, and utilises, consistent temperature, pressure, and sufficient dwell time to ensure complete sublimation of the inks.*

### **7) In particular, the success of a calender is based on the consistency of drum temperature and pressure across the entire horizontal surface of the roll.**

*Very true, see above.*

### **8) Many customers are drawn to sublimation printing for the superior quality. It is universally known that print quality on sublimation surpasses that of Latex and UV print.**

*There is no debating this statement. It's unfortunate for those who are attempting to print fabric with UV or Latex. There is no comparison to the quality of true sublimation.*

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