DIRECT 2 GARMENT PRINTING

MASS PRODUCTION WORKFLOW

FORWARD THINKING®
Industrial garment printing is now a staple of the custom t-shirt business. Apparel sales are shifting into the online channels and it is natural that the production stream for decoration parallels that explosion. Gone are the days of printing thousands of shirts with one design and stocking them on a shelf for delivery.

**DIGITAL GARMENT PRINTING IMPACT**

Decorated apparel shops are expanding their digital production needs to tailor to this demand. A few as five years ago, many shops wouldn’t dream of going into digital. The equipment was expensive. The ink transparent. Pre-treating the shirts before production was an ungainly step. Not to mention the production speeds of the machines were abysmally slow, even compared to manual printing.

Fast forward to today, and more shops are investing in a production line up of digital equipment. And why not? The average expected turn time for orders has shrunk. Seven to ten business days is now usually five to seven. A good number of shops promise shipments in three to five days. Many are shooting for one to two.

How is this possible? It’s all about modern industrial direct to garment printers and digital workflow revolution.

**ENTER THE HIGH VOLUME INDUSTRIAL GARMENT PRINTING MODEL**

Now the modern business model is to stock the blank inventory at the production facility and print on demand as the orders roll in. From an inventory control standpoint, things just got incredibly easier. As the sku counts have drastically dropped. Remember when there were hundreds of designs, on multiple shirt colors, all in five different sizes? The sku count was astronomical.

Now, stocking blank apparel in a limited amount of styles with a dozen or so popular colors is the norm. Today, a website may show hundreds of designs. But now these are just fed into a bank of digital garment printers to produce as the individual orders roll in. It’s a different production equation.

**DIGITAL PRINTING WORKFLOW – MAKING THE MOST OF DIRECT TO GARMENT**

Digital workflow minimizes the make ready needed for production. Eliminated are the steps that deal with screens, registration or mixing ink colors. When that’s carved out of the production line, you save a huge chunk of time. It’s a Lean Six Sigma practitioners dream.

Shops that used to have one direct to garment printer, are upgrading to faster, more versatile and newer models like the DTG G4. Commonplace now are banks of printers clustered around a dryer. Companies are benefiting from the increase in online sales, and the ability to make money with less labor dollars.

There still are some challenges though. Even with the best workflow models there are still bottlenecks that drive operation managers crazy. Let’s take a look:
**ORDER INFORMATION**

Just like in traditional screen-printing all workflow must stem from the original request. One of the great things about going digital though is once you’ve built the system, it is far easier to replicate outstanding results.

The trick is to capture the right information with quality control checks in place. Then it’s just a matter of training your employees to comprehend the order and make good decisions. Try to build the workflow so there’s only one right answer. Use visual queues when you can. Automating with barcodes and tracking works too.

With so much information at our fingertips, it is still easy to make mistakes. Build your quality control with having proactive and forward thinking people on your team. If something doesn’t look quite right on an order, don’t just process it and move on. Question what’s needed and find the right answer.

**ARTWORK**

Artwork is still the most overlooked and critical component in the decorated apparel industry. Even more true in the digital world. A great art file can make or break easy production.

Digital files have the utmost advantage of not using halftones to produce the image. All that interference with halftone dot patterns or graininess in the image? Gone. Traditional screen-printing can’t compete with an antiquated method of reproducing the image. Want amazing blends and unlimited color on a garment? Direct to garment is your answer.

The challenges though are all tied to the resolution of the file. Problems can still occur. If your customer sends a 72 dpi .jpg downloaded from the internet. Maybe they want it enlarged to print 13” wide on the back of a shirt. That’s not going to produce any award winning results. Most all manufacturers or experts recommend a 300 dpi file.

Yet, you’ll still get that downloaded 72 dpi file enlarged by the client to be 300 dpi. There are still people in this industry having the vector vs raster conversation every day. These problems will probably never go away.

Instead focus the conversation on the source image. Be sure to review any distinct edges or flat chunks of color in the file. If they look jagged, or have color artifacts in the image, that's going to be present with the printed result.

The artwork workflow has to include detailed descriptions of the production expectations. Describe specifically what is needed. Show how things will print. Illustrate the best practices for superior results.

Shops should outline that digital printing is a different animal than traditional screen-printing. The final results will be different. Don’t hide from that. Celebrate it.

**INVENTORY AND DIGITAL PRINTING**

Many shops are comfortable in pulling large quantities of apparel for orders. DTG workflow is different as the order quantity is much smaller. Instead of lining up three or four orders that use hundreds of shirts, the workflow now may be forty or fifty orders that could contain less than six shirts each. How will your crew react to that?

In screen-printing, schedulers are used to organizing things by batch runs. If there were multiple orders with the same image, they would gang them up and run them consecutively. With DTG, by clicking one button on the control panel, you can shift from one image to another in seconds. The G4 Direct to Garment Printer, with its standard flexible platen system, can even allow you to do this while other orders are running.

This can save a lot of organization time. There is no need to worry about gang running orders with the same design. Your crew can concentrate on getting orders out by the expected in-hands date instead. Try arranging everything by the furthest freight travel time out. Orders that have the longest transit time are printed first. Orders that are a one day ground are produced last. Speed to ship is what pleases the customer first.

During production, also make sure there is good communication between the production crew. With a lot of orders churning through the system, it may be easier to put the wrong shirts in the wrong box. Be sure to double check with the packing slip. A thumbnail image of the design is easier to decipher than some alphanumeric sku number.

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PRE-TREATMENT AND INDUSTRIAL GARMENT PRINTING

Unless you are using a Kornit DTG system you have to pre-treat the shirts before production for any image that uses an underbase white. Whites and light colors don’t need it. However, all DTG ink is water based and transparent. This means your light blue ink on a yellow shirt will look green after it is produced, unless you lay down a white layer.

It is the pre-treatment step that allows this bond to the shirt and have the color steadfastness that you need. Kornit owns the patent for the inside the machine pretreatment step, so all other equipment manufacturers have to do it another way.

There are some serious limitations and maintenance issues with the built in pretreatment system:

The Kornits will cost you between $100K to $500K for a machine. If the pre-treatment system is built in you’re spending some of its production time for pre-treating when you could have a separate system do it.

Salt – most pre-treatment solutions have a very high “salt” content. Pre-treating inside your machine means spraying it with chemicals that can impact the entire system.

PRE-TREATMENT MACHINES

Plenty of smaller digital shops can get by just using a power sprayer from a hardware store. This hand sprayer is included with the purchase of very G4 industrial direct to garment printer. But for perfect digital mass production workflow a separate pre-treatment machine is mandatory. This device will allow you to apply the product to the shirt in the exact amount.

The workflow question for a lot of shops is exactly when to pre-treat the shirts for orders? The day before? Just before printing?

The best solution is to just take care of it after you’ve pulled the inventory. Organize the workflow so that it streams into a separate area. Line it up in the same sequence you’ll be printing the orders. Pre-treat and dry the shirts, then move them to the print area.

Watch for quality issues. Avoid pre-treating too many orders only to discover there is a coverage issue. Since the entire print operation is dependent on this critical step, be sure that your equipment and the staff are top notch.
PRINT PRODUCTION AND AIR DRYERS

As shops add equipment to their lineup, many are clustering three DTG printers per one 60" dryer belt. This is smart, as the shirts need to move down the belt slowly and there's usually plenty of room. At 280°C, twelve to fourteen minutes in the dryer chamber completely affixes the ink to the shirt, but times and temperatures change according to the ink brand and dryer heat, so testing will be necessary.

Using a belt dryer rather than a heat press is optimal for a few reasons. First, it removes a production step with the digital print operator. They just remove the shirt from the press platen and lay it on the belt. Walking it over to a heat press is extra effort.

PRINT PRODUCTION AND HEAT PRESSES

Many shops will start with “pods” or clusters of DTG printers. Depending on how many you start with and the space you have, multiple heat presses maybe be a better solution. With DTG Digital’s multihead G4 pod, for example, you get 2 printers and 4 heat presses.

The advantage to using heat presses is floor space and flexible workflow. For example, I can have networked G4 printers in different rooms or different parts of the shop with a pair of heat presses next to it. With a dryer production system you need to have everything in one large space.

WATCH FOR THE PITFALLS

DTG press operators should also make sure they review the print nozzles daily to eliminate streaking. A simple nozzle check can make a world of difference.

Color matching challenges should be identified early. Sometimes the art calls for PMS color matching. With CMYK, especially over an underbase or a shirt color, this can be difficult to achieve. In advance of critical color orders, a color profile can be set up and dialed in to bridge any gaps. For these types of orders, it’s best to give the customer some specific expectations on what is achievable with this print process.

PACKAGING

One of the great things about digital print production is that it is truly set up for faster production. Your shop can easily set up an order packaging station at the end of the production sequence.

Here orders are reviewed for accuracy for shirt quantity, style and color. The image is checked for quality. Everything can be folded neatly, and placed in a mailer or box. A packing list can be printed from your system. You can even weigh and ship the order here, instead of moving it to another department.

Imagine how much time and labor you can save if all the production and shipping for your orders were in one place. Boxes or mailers for dozens of orders are assembled on one skid. A few times a day this skid can be moved to shipping for easy pick up.

It’s easy to see why a lot of companies in the decorated apparel industry are expanding their footprint into digital production. Like any industry, businesses that adapt to the changing times thrive.

If your business model shows that the number of orders taken is going up, but the actual quantity of shirts printed is shrinking, you may need to consider implementing a digital workflow footprint in your shop.