The Art of D2G

Direct to garment (DTG) printing has been around quite a few years now but although the technique may look the same it has, in reality, developed and changed in some key areas. Here we will look at some of the basic points that should ensure good quality prints, a productive machine and, most importantly, happy customers.

There are three key elements to this technique and we will look at some basic housekeeping and information for each of them. They are:

1. The Machine, 2. The Ink and 3. The Software

The Machine

The D2G process is no different from any other when it comes to the upkeep of the production unit. Care and cleanliness should go hand in hand as any dirt on the machine can be easily (and expensively) transferred to the garment. Follow the basic rules as laid down by your supplier and this should ensure that the machine will productively produce prints for the foreseeable future. Some elements of care are obvious; although experience has taught us that these are often the ones that are forgotten so don't become complacent and fall into this trap. Follow the daily, weekly and monthly routines as they are laid down by the supplier and you will always have a good argument should anything go wrong. There are however some specific points that are well worth mentioning so we asked Impression Technology Europe (ITE), to help us out. Naturally they can only comment relative to the machines they supply (DTG Viper, K3 and M2) but many points can be equally applicable to other machines on the market. (Where we are referring to ITE products we will use the term DTG but when we are commenting about the general industry we will use D2G). If in doubt about any of the points made, always check with your supplier before adopting any of the maintenance techniques mentioned.

Two of the key areas of the machine are the print head and encoder strip. Most of you will know where to find the print head but you might not be so familiar with the encoder so let's cover that first. The encoder strip is that strip of seemingly clear plastic that runs across the machine where the print head traverses the machine. Although to your eye it is transparent it does, in actual fact, carry information that helps the print head arrive in the right place at the right time. Logically if this gets dirty you may start to lose not only print quality but also registration. A simple (but careful) wipe over with DTG cleaning solution is all that is needed here, but don't be tempted to economise by using plain water. The recommended solution has been specially formulated to dissolve ink particles without harming the encoder strip. Now let's turn to the head.

In the DTG machines this is, in part, looked after by the ink delivery system which operates under pressure delivering just the right amount of ink without clogging. This however is not the main area of concern for machine suppliers but rather the location of the head when the machine is switched off. When the machine is not powered the head sits on something called the capping station. This is, in effect, a flanged recess that protects the print head from the surrounding environment. As long as the head sits where it should there is little chance of it drying out - something that could turn out to be very costly. To ensure that the head is positioned where it should be the machine should always be switched off using the switch on the machine and NOT the one on the power socket. If switched off correctly the machine will go through a 'shut-down' process and will place the head over the capping station. DTG machines should also be left switched on at the power socket as this will then power the WIMS (see 'The Ink' on the following page).

The Ink

You probably think there is nothing to do with the ink other than fill the machine but you would be wrong. Many of these machines are derivatives of an existing ink jet print engine and, as such, were originally designed to run with dye based ink. The direct to garment technique uses pigment based ink which has been specially formulated using particles that are fine enough to pass through the nozzles. The colour ink (CMYK) does not present much of a problem as long as you stick to the 'switch off' technique described before. It is the white ink that needs more care. The reason is that the pigment used to formulate it, although the same size is denser than the CMYK pigment and can settle. Because of this it is recommended that the white ink is agitated occasionally thus ensuring that 'the mix' is kept as it should be. On the machines supplied by DTG they use a system called WIMS (White Ink Management System) which not only satisfies this need but also ensures correct delivery of ink volume to the print head. On other D2G machines that do not have WIMS, the movement of the machine will achieve this whilst it is printing but it may be the case that you have to manually agitate the white ink when the machine is at rest. As usual if in doubt consult your supplier. One last point we will make on ink is that you should always ensure that the ink does not run out. Apart from the obvious problem that you will draw air into the system, which can be a real pain to get rid of, the ink also helps cool the print-head. If the head is run 'dry' then it can suffer serious damage resulting in replacement of the complete head.

The Software

Before we make any comment here let's be clear that we are talking about the software that is used to send the design from your PC to the printer and not the 'firmware' used within the machine. It is a little more difficult to comment in this area as each manufacturer will use a bespoke system to achieve this task but there are a few general rules that are worth considering. First, and most obvious, make sure that you ALWAYS use the software supplied with the machine. Apart from the fact that it knows how to communicate with the machine it will also contain the ICC profiles (colour profiles) that will ensure that you print the colours you are expecting to. This software will also contain a RIP which is a process of turning vector or digital information into a rasterised image. It is a sort of translator between the PC and the printer and only the one that comes with the machine will know the correct language to use. With D2G printing though it also knows where to place the white ink in a design. Remember that a standard ink jet printer is programmed to omit colour where white exists in a design. Whilst this will still work on a white t-shirt it won't, for instance, work on a black one. The RIP that is supplied with DTG machines also works out how much white to lay down thus optimising usage of the ink. Always ensure that you have the latest version of software. This industry like most others using software is always correcting bugs and developing new techniques so regularly check if updates are available. Lastly, if you are going to change your PC and/or operating system (e.g. changing from Windows XP to Windows 7) ALWAYS check first that the software is compatible. Do not take it for granted as you may end up with an expensive PC that you cannot use. This may become more relevant in the near future as Microsoft is currently beta testing Windows 8.

Many of the points we have made here will seem obvious to many readers but, as mentioned earlier, it is often the obvious that is missed.

We would like to thank Impression Technology Europe for their assistance in the writing of this article. If you are interested in the products they offer you can contact them direct or visit their website.