



Digital Devices

for commercial printing

A brief guide to CTP from Hunter Penrose

HUNTER PENROSE

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AT THE BEGINNING of the digital revolution in the printing industry, the questions were: “Do I really need CTP? Can digital printing really give the same quality as offset? What is a digital workflow?”

Today, the questions are “Which CTP?”, “Which digital press?”, “Which workflow?”

CTP and the digital press are needed to achieve a competitive level of print quality, speed, flexibility and cost effectiveness. Many digital devices and programmes are available. Hunter Penrose is here to help you decide.

Choosing a CTP system

CTP has been with us for over 15 years. For all types of CTP, digital data containing text and images is transferred to a platesetter, a device which puts the image directly on to a printing plate (for offset or flexo) using lasers. All CTP gives a sharper image on the plate than is possible with film.

There are two main types of laser used for CTP: thermal and violet.

Thermal

Thermal CTP uses infra red lasers, producing very sharp images on thermal CTP plates, which are widely available. The equipment and servicing costs tend to be more expensive than for violet, so the cost of owning a thermal CTP is usually higher.

Violet

A violet laser beam writes the image to a silver halide plate or a violet photopolymer CTP plate.

Silver halide plates are capable of holding screens up to 300 lpi, with very sharp dots. The process uses a large quantity of developer, producing silver waste, which must frequently be removed from the plate processor. There is no choice of supplier for silver halide plates; they are made by only one manufacturer.

Violet photopolymer plates are available from all the main plate manufacturers. Early violet photopolymer systems produced a less sharp dot than thermal or silver. Today, improvements in laser power and plate technology mean that violet photopolymer can print screens up to 200 lpi with very sharp dots – as good as other kinds of CTP plate – and with very good run lengths.

Single violet lasers are less expensive than thermal lasers, they consume much less power, last longer, and are very much cheaper to replace.

CtCP

This type of CTP uses UV lasers to image certain types of conventional positive PS plates. Much more laser power is needed than for violet photopolymer or violet silver systems, so the equipment is more expensive. However, conventional plates are cheaper than CTP plates.

Summary – Laser systems

| Type | Initial cost | Maintenance cost | Output quality | Speed | Choice of plate |
|---------------------|------------------|------------------------|----------------|-----------|-----------------|
| Thermal | Moderate to high | Moderate | Very good | Good | Very good |
| Violet silver | Moderate to low | Low (except chemicals) | Very good | Good | No choice |
| Violet photopolymer | Moderate to low | Very low | Good | Very good | Good |
| CtCP | High | High | OK | OK | Good |

Platesetter types

There are three main mechanical systems for transporting the plate through the platesetter: external drum, internal drum and flat bed. There are many digital systems for preparing the image and organising the workflow.

External Drum

This system is used for all thermal CTP. The plate is mounted on the outside of a metal drum, where lasers scan the image on to the plate. It is a complex mechanism, requiring regular maintenance and eventual replacement of spare parts.

Internal Drum

Used for some violet CTP systems. The plate is mounted on the inside surface of a hollow drum, where the laser beam is directed through a spinning mirror.

Flat Bed

The most simple and reliable system, it has few moving parts. The plate is held on a flat surface where a violet laser scans the image on to it. Only used for violet systems.

Summary – Platesetter types

| Type | Initial cost | Maintenance cost | Output quality | Speed | Reliability |
|--------------------------------|------------------|------------------|----------------|-----------|-------------|
| External drum (thermal) | Moderate to high | High | Very good | Good | Good |
| Internal drum (violet) | Moderate to low | High | Good | Good | OK |
| Flat bed (violet) | Moderate to low | Low | Good | Very good | Very good |

Software

With CTP, because there is no film, all planning including imposition is done on computers. If you do not yet have a digital pre-press network, we can help you to build one. It can be simple or complex, consisting of one or more graphic workstations, linked to the CTP's own computers. Any type of graphic software can be used; we recommend Adobe Creative Suite (CS5 Standard). A wide choice of additional programmes is available for tasks such as imposition, colour management and proofing, however the RIP (see below) can support many of these functions up to a fairly advanced level.

The CTP itself includes two programmes, the RIP and the Tiff Catcher, on two computers. The RIP converts Postscript/PDF files to TIFF, a file format needed for plate output. The RIP also separates the images into CMYK, and converts them into printable dots. It can also perform many other tasks, including trapping, imposition, ink management, PDF checking and proofing. The RIP can also help you to organise and manage the workflow – all the jobs sent through the network to the CTP. The Tiff Catcher collects data from the RIP and controls the physical work of the platesetter.

Plates

Thermal and violet photopolymer are available from all main manufacturers. Violet silver plates are available from only one. Thermal plates can safely be handled in daylight before imaging. Unexposed violet plates must be handled under yellow light. There are several conventional plates available for CtCP, but not all types are suitable.

CTP plates are processed with specific developers and / or finishing gums, in a plate processor which is usually installed in-line with the CTP platesetter. Some new types of CTP plate require little or even no processing.

Profitability

The market has long ago realised that CTP is not only profitable, but essential. A printing business with the right CTP system, combined with good software and effective workflow, will produce better results more quickly than a printer working with film. The removal of film from the reprographic process has a technical advantage, but it also takes out a big cost element, including the rising cost of film itself, and the laborious tasks of film assembly and manual imposition, with their attendant margins for human error. Printers with CTP will do more work, and will do it better and more quickly, than printers without CTP.

A modern RIP can handle all the functions necessary for print output including bleeds, trims and imposition. Instead of going to a CTP, short print runs can be prepared in the same workflow / RIP, but can be sent to a **digital press**. For short runs, digital printing is more economical than offset and is of equal or better quality.

Systems, service, software and consumables from Hunter Penrose

Thermal CTP

Our thermal systems are built by **Cron**, the biggest manufacturer of CTP systems in China. Cron owns the UK-based Highwater CTP brand. These are external drum systems delivering a range of speeds up to 36 plates per hour at high resolution levels. Supplied complete with plate processor and digital plate reader.

Hunter Penrose Supplies Ltd is also an authorised distributor of **Kodak** CTP equipment and consumables.

Violet Photopolymer CTP

Our violet systems are made in the USA by **ECRM**. These systems are flat bed construction and consequently deliver a high level of reliability and long life, with fast output and resolution up to 3,500dpi. Supplied complete with plate processor and digital plate reader.

Digital Printing

For short-run colour printing we supply and install the **Intec** series of digital presses, complete with RIP.

Networks and Software

We supply and install graphic production networks and software, complete with anti-virus protection. RIPs and Tiff catchers for CTP are configured to match your output and workflow needs, and are upgradable. Our **Management Information System** gives you power to analyse and control your costs, optimise your quotations and keep control of your stocks.

Service

As well as manufacturers' warranties, all our installations are supported by training for operators, and maintenance programmes backed by local service engineers.

Consumables

Hunter Penrose supplies a complete range of plates, chemicals, toners and other consumables for digital printing and CTP production, as well as all traditional pre-press materials and a full range of consumables for the press-room including inks, press chemistry, blankets (with or without metal bars), and underpackings.

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