

Flexographic

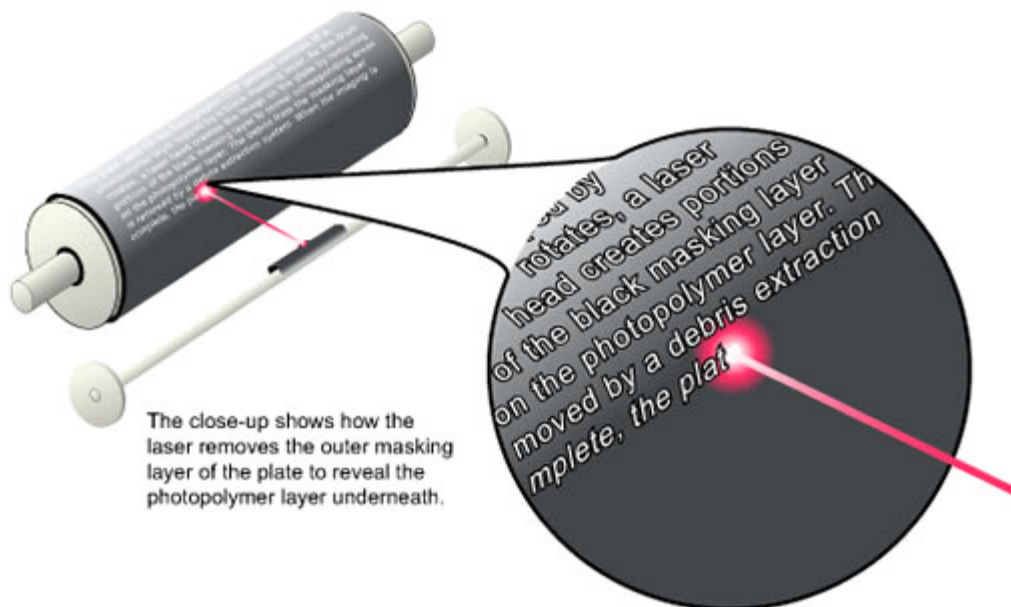
In computer-to-plate systems, lasers do imaging directly onto rubber plate substrates. The resulting plate has a relief surface comprised of raised dots of various sizes and spacing. Ink is applied to the raised surface, which is then printed onto substrates such as paper, tissue, cardboard, foils, or plastic materials. Computer-to-plate imaging for flexographic printing is also known as CtFlex.

CtFlex Process

Digital imaging of flexographic plates is a multiple step process, but requires far fewer steps than conventional flexographic platemaking. The process begins with the placement of the plate material on an external drum where it is held in place by vacuum or double stick tape. The process of imaging the plate on the external drum is known as imaging "in the round".

Another type of plate that is used for CtFlex is a seamless material that is bonded to a sleeve and is known as "computer-to-sleeve". The flexographic sleeve is used when continuous imaging is desired.

A flexographic CTP plate consists of a photopolymer layer topped by a black masking layer. As the imaging drum rotates, a laser head creates the image on the plate by ablating portions of the black masking layer to reveal corresponding areas on the photopolymer layer. Many flexographic platesetters use lasers that operate at 830 nm or 1064 nm wavelengths. Only a light coating of ash is formed from the imaging process, which is removed with a debris extractor built into the system. This is followed by a simple water wash and a short drying period.

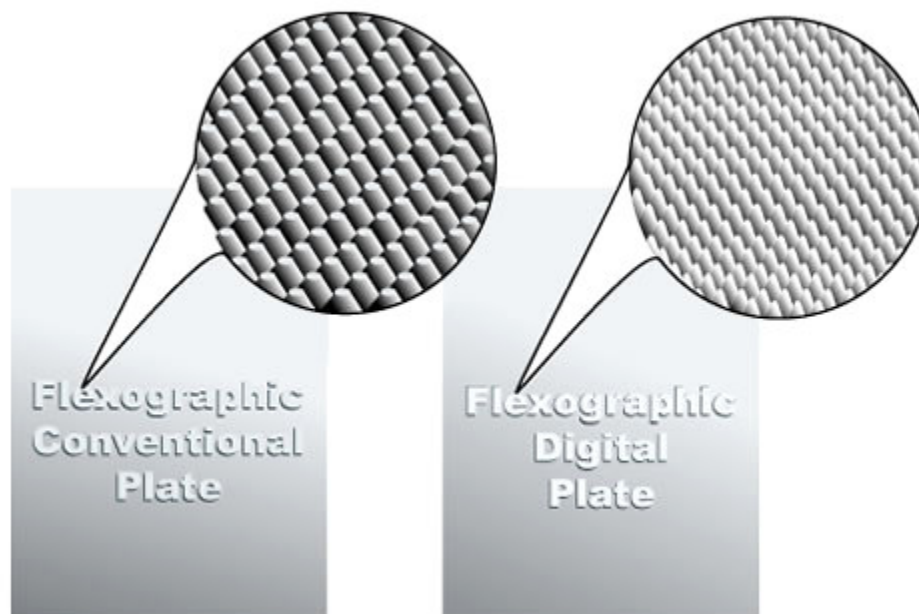


Flexographic platesetters require more power than offset thermal units in order for the lasers to ablate unwanted areas of the plate material and provide proper imaging. The plate material must be strong enough to withstand the extremes placed upon it during the printing process, but must also allow the lasers to erode the material easily during the imaging process.

In conventional, flat platemaking, the image can become distorted because of the cupping and distortion that may occur when the plate is mounted to the printing cylinder. Much of the distortion of the image is eliminated with CtFlex because the image is engraved in the round and because additional measures are used during the imaging process to compensate for potential distortion. This results in a printed application of a much higher quality than is possible with conventional flexography.

Dot Size

The primary difference between a conventionally imaged flexographic plate and one that is digitally imaged is the dot size. On a conventional plate, the resulting dot on the plate is larger than the dot on the negative and the top of the dot is flat. On the digitally imaged plate, the dot on the plate is the same as what was imaged and the top of the dot is rounded. Since the digitally imaged dot does not change size, the plate can hold a much smaller dot than a conventional plate, which results in improved print quality.



The average of the tonal range in traditional flexographic platemaking is between 10 to 85%. It is common for some areas of highlights and shadows to be lost. CtFlex improves on this significantly with tonal ranges of 3 to 97%. With four color or hi-fidelity color work, it is possible to achieve much better definition and contrast. The printed image is much closer to continuous tone quality than with conventional plates.

Advantages of CTP for Flexographic Printing

- CtFlex eliminates film from the workflow, which saves a considerable amount of time and reduces materials and labor costs.
- Storing digital images is easier and more efficient than storing film negatives, which can require large amounts of physical space.
- Film can get scratched and damaged, even in storage, but digital images will always look consistent, clear, and sharp.
- Print quality is improved because the dot gain associated with imaging plates from film is eliminated.

- Because film substrates are affected by temperature and humidity changes, the film may stretch or shrink resulting in registration problems at the press and substandard quality. CTP eliminates these problems because no film is involved.
 - Cupping and distortion of plates is reduced because CtFlex plates are imaged in the round.
 - Copy changes are much easier with CTP because changes are made to a digital file, which is imaged onto a plate rather than having to produce new films to be used for imaging.
 - Film and conventional platemaking can create large quantities of hazardous waste as byproducts, such as silver and developing chemicals. The hazardous waste materials must be disposed of properly which can be costly. CTP technology eliminates much of the hazardous waste problems, which is much safer for the environment.
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