CTP EVOLUTION

CTP engineering evolved from computer-to-film (CTF) imagesetter technology, which was predominantly internal drum. In this design, the media is vacuumed to the internal surface of the drum and exposed by a laser beam reflected by a mirror (or mirrors) mounted on a high speed spinner motor. The laser is positioned a considerable distance from the media and moves across it to expose the image. Because of this distance, a sensitive media emulsion is required for the system to function. When this design was incorporated into CTP equipment, the most viable laser was a 532 nanometer (nm) YAG green laser. Other available lasers were the 633 nm red and the 488 nm blue gas lasers. The most viable media was silver-based plate, which could be exposed by all three laser types.

Internal drum construction, utilizing a single laser diode, was the technology of choice in the mid 1990s, when CTP technology first began to emerge. Most early entrants into the CTP market, such as Agfa, Autologic, Cymbolic Sciences, Purup, and Western Litho, chose the 532 nm YAG laser, following the lead of Creo, who pioneered CTP technology with their 3244 Platesetter. Competitors such as Barco (which later became part of Esko Graphics) and ECRM chose the 488 nm blue gas laser. History proved the choice of the blue laser to be a mistake, primarily because of its high failure rate, often in less than 1,000 hours. A few manufacturers also offered equipment with the 633 nm red laser, since this laser was well accepted and understood in CTF technology.

From these primitive laser technologies evolved violet laser diode technology, which is used in almost all internal drum-based CTP equipment today. The violet diodes cost less than the blue and green lasers, and can also be used in a more user-friendly yellow safe-light environment.

Although the majority of early CTP devices were based on internal drum design, several manufacturers took a different approach: Creo and Scitex initially, joined soon thereafter by Screen. These companies recognized the limitations inherent in internal drum technology for imaging directly to plate emulsions.

Rather than using the traditional internal drum technology, these pioneers developed external drum recorders bearing an 830 nm infrared laser. In this design, the media is clamped to the external surface of the drum, which allows for mounting of the laser a few centimeters from the media. Mounting the laser closer to the plate, combined with the design of a powerful laser source with multiple laser diodes, created the ability to expose what is known today as thermal plates. The use of thermal plates eliminated the need for a darkroom or safelight environment. In addition, the thermal plates had the advantage of durability for print runs of upwards of a million if baked.

The external drum approach also had its roots in film imagesetting devices. External drum imagesetters were being marketed by Screen and also by Orbotech, a lesser known Israeli manufacturer of very large format imagesetters. Behind the scenes of these two manufacturers lay Creo, a little known company at the time. In the 1980s and early 1990s, Creo was a major supplier of components to these manufacturers. Creo held the patents and supplied to Orbotech nearly all of the major components for its external drum recorders, and supplied similar components to Screen. Creo did not, however, design and manufacture actual imagesetters, which placed it in the unique position of having advanced imaging technology but with little vested interest in CTF. Creo was the first to come out with a thermal external drum platesetter, introducing their pioneering Trendsetter at Graph Expo in October 1995. The first production models shipped to customers in Spring of 1996.

Since Screen had experience manufacturing external drum imagesetters, one would have expected them to have been an early leader in the application of this technology to the imaging of plates. Surprisingly, this is not the case. Screen's original efforts to produce a CTP device, in 1996, were based upon a flatbed design. It is possible that the patents owned by Creo on external drum technology prevented Screen from initially pursuing an external drum device. Whatever the reason, it was not until late 1998 that Screen began shipping the external drum-based PlateRite (PT-R) 8000.

With the introduction of the PT-R platesetter, Screen quickly made major inroads in the CTP market. The mechanisms and electronics to achieve the mounting of film to an external drum, although reliable, were extremely

complex and undoubtedly more costly to manufacture than the mainstream internal drum imagesetter. Since Screen had already perfected the manufacture of external drum technology for its imagesetters, this experience gave the company a competitive advantage when it became clear that this technology would capture an expanded market that could not accept their initial flatbed design or the internal drum design of other manufacturers

Scitex, who focused on internal drum imagesetters, originally introduced the internal drum Doplate 800 platesetter along with a flatbed platesetter in 1996. However, neither product was successful, and Scitex quickly abandoned both models in favor of the external drum design, introducing their first Lotem by the middle of 1997.

The external drum devices of all three manufacturers quickly became widely accepted in the marketplace. Creo at first was the dominant player, but Screen's offerings eventually became the most widely used because of OEM agreements. Heideberg, Agfa, and Fuji were at a competitive disadvantage with Creo, Scitex, and Screen, as they did not have an external drum thermal platesetter to offer the market. Realizing that any attempt to "reinvent the wheel", at least in the short term, was senseless, these manufacturers turned to OEM agreements. Until these manufacturers had the ability to develop their own viable external drum platesetters, they purchased proven Screen platesetters and re-badged them as their own. Heidelberg at first marketed Creo Trendsetters, but then switched to offering Screen PT-Rs after their agreement with Creo dissolved. Agfa and Fuji both offered Screen PT-Rs under their brand names. Heidelberg has since developed their own external drum thermal platesetters and has discontinued marketing Screen PT-Rs.

Agfa developed a thermal external drum platesetter of their own design - the Xcalibur/Avalon series. However, they continued marketing 4-up PT-Rs under their Accento brand. On January 29, 2008, Agfa announced the closure of its production facility for thermal external drum platesetters. At this time, Agfa also announced future plans for extending their offering of the PT-R line to the 8 up and VLF models, which were not previously part of their product offerings since they would conflict with their Avalon series of platesetters.

Fuji, rather than create its own thermal platesetter at a very high cost, continues to offer the Screen PT-R platesetters, along with internal drum violet machines of their own design.

Because of widespread market acceptance of the PT-R and because of these OEM agreements, Screen is now the number one manufacturer of platesetters worldwide.