Temperature Compensation Technology for Computer-to-Plate Devices

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Thermal computer-to-plate (CTP) devices from Kodak are extremely accurate and repeatable. To automatically ensure that these very tight specifications remain true throughout the entire environment operating range of the machine, Kodak’s CTP devices are equipped with a temperature compensation system.

The effects of temperature variation during plate making

Aluminum, like all materials, expands and shrinks with changes in temperature. In fact, a 1-meter wide aluminum printing plate will stretch by more than 0.127 mm (about one row of dots at 175 lpi) if the room temperature increases by a mere 5.6°C (10°F). Therefore, plates, especially remakes, made at different times of the day under typical shop conditions can end up being different sizes when they are imaged, leading to subsequent on-press registration and color shift problems.

The benefits of accurate registration and fit can be lost by the simple act of exposing plates at different temperatures as the platesetter temperature or ambient temperature rises or falls over the course of a day.

Temperature compensation is not the only factor impacting on-press registration. Strict process control during the plate making process is critical to ensure adequate on-press registration.
The solution: temperature compensation technology

To eliminate the impact of this problem, Kodak has designed a unique temperature compensation technology that adjusts the plate image size to compensate for temperature variation and thus maintain on-press fit and register. The image size accuracy between plates made on the same machine or different machines is +/- 20 microns (.020mm). For example, a plate imaged at 20°C (68°F) at one location and another at 30°C (86°F) on a different machine will register within 1/5 of a row of dots at 250 lpi - eliminating any noticeable impact to color balance or register on press.

A real-world example

Suppose four typical 8-page CMYK plates are exposed during a morning shift at a room temperature of 22°C (72°F).

During the late afternoon one plate is damaged and needs to be re-imaged.

If the ambient temperature has increased over the course of the day to 28°C (82°F), then the first plates and the images on them will have grown by 0.127 mm per meter.

If the new plate is imaged without temperature compensation, the plate will have grown but the image size will remain constant and will be smaller relative to those on the old plates. The new plate image will therefore not fit on press.
However, a plate imaged with a KODAK Platesetter would automatically be adjusted to fit the previous set. This is true even if the re-made plate was imaged on a different KODAK Platesetter from the original set, making the process of re-making a plate simpler, faster, and less prone to error.

Not all CTP devices are stable across a wide temperature range

The chart below shows the recommended temperature ranges for leading platesetters in the industry. Because of the temperature compensation technology built into the devices, KODAK Platesetters maintain consistent imaging through a temperature range of 17 to 30°C. Platesetters from other manufacturers generally have a much smaller range.

* Exception is KODAK MAGNUS Q800 Platesetters with temperature range of 20°C to 30°C
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