Curves

You can use curves to control the color that is imaged on a plate. A curve is a graphical representation of a set of numbered pairs.

Applying calibration curves to a printing plate is a standard method of controlling color on curve-controlled devices such as offset presses and digital halftone proofers. When a device images plates, a calibration curve changes the natural color response of a device by adjusting the tint percentage, either reducing a tint (cutback) or increasing a tint (bump), in the digital file.

A linear calibration curve makes no change to the digital file before imaging on plate. You can start off with a linear calibration curve and later adjust the curve so that it changes the color effect in the way that you want.

The curves that ColorFlow calculates are smooth and monotonic, increasing continuously from 0% tint (paper) to 100% tint (solid). Using smooth curves provides for smooth vignettes and reduces "flashing" (or hue changes) in color builds when moving through the tonal scale.

The following table describes each curve type in ColorFlow:

Curve Type	Description
Device curves	A set of curves, one for each ink color, that is associated with a particular device in a device condition. The device curve corrects either tonal values or gray balance response differences between multiple devices in the device condition. When you characterize a device, you can select a device curve to exercise the working range of the device. You can also import a Harmony transfer calibration curve as a ColorFlow device curve. For a flexographic device, you can choose a bump or cutoff curve as the device curve
Simulation curves	Calibrate the device condition in the PCO to the simulation target
Conversion curves	Calibrate the device condition in the SCO to the PCO
Plate calibration curves	Are linearization curves that linearize a plate for a particular plate type, device type, screening, and plate line. It adjusts the tint values so that the measured dot area on the imaged plate is the same as the tint specified in the input digital file. That is, a tint patch specified as 50 percent in the digital file will measure a 50 percent dot area on the printing plate. Plate curves use a single channel to calibrate plates for all separations.
Print calibration curves	Make the response of a curve output device condition match the response of a target device condition. Print curves use multiple channels to calibrate response independently for each separation. A print calibration curve is a combination of a device curve, and a simulation or conversion curve

G7 print calibration curves	When you select G7 calibration, the Calibration Target shows **G7**. Unlike other calibration targets like GRACoL or a FOGRA specification, the G7 target does not define an absolute, independent response to which your press work is aligned. Instead, G7 defines an ideal response from the measured response of your press device condition. The G7 calculates curves based on different max densities, while choosing an industry dataset as a target tries to match that industry dataset as closely as possible. Specifically, G7 calibration produces C, M, Y, and K calibration curves so that your calibrated press work has the following properties: • Specific tints of C, M and Y, with K=0, will produce a visually neutral gray on the press sheet. For example, CMYK (50, 40, 40, 0) will be neutral. • The neutral tonality produced by the CMY tints defined above matches between two G7-calibrated printing systems. • The neutral tonality produced by a Black-only ramp matches between two G7-calibrated printing systems. The benefit of the G7 methodology is that CMYK separations prepared for one G7-calibrated print condition system will look similar on other G7-calibrated print conditions that use different printing technologies.
Print transfer curves	Control the response without measuring a response and defining a target. ColorFlow provides some built-in transfer curves for you to use. You can also create custom print transfer curves
Harmony curves	Curves that are imported from Harmony

Curves also exist inside ICC device profiles and DeviceLinks. You can view, and adjust these profile curves the same way as you adjust other curves.