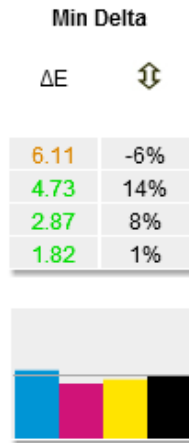## 11.2 Heatset, UV-Printing and Gravure

With these printing processes you do not need to take dryback into account, so you can adjust directly from fresh prints. Measure a strip on a printed sheet with PrintSpec, and adjust densities according to **the Min Delta** readings on the Summary page:

Min Delta

ΔE	⇕
6.11	-6%
4.73	14%
2.87	8%
1.82	1%

The % numbers shows you how the density should be adjusted. In this example, cyan should be brought down 6%, while magenta should be brought up 14% and yellow 8%. The black ink can be left as it is.

Check if your pressroom or on-press instruments give you the same densities and CIELAB readings as PrintSpec. The density values can be different due to different filter sets. In that case, you can add a correction factor in PrintSpec, so the software will give you density values that are comparable to the instrument readings.

11.3 Digital print

Toner-based prints are dry as they leave the press, so you can adjust density from fresh press sheets, using the **Min Delta** readings on the Summary Page.
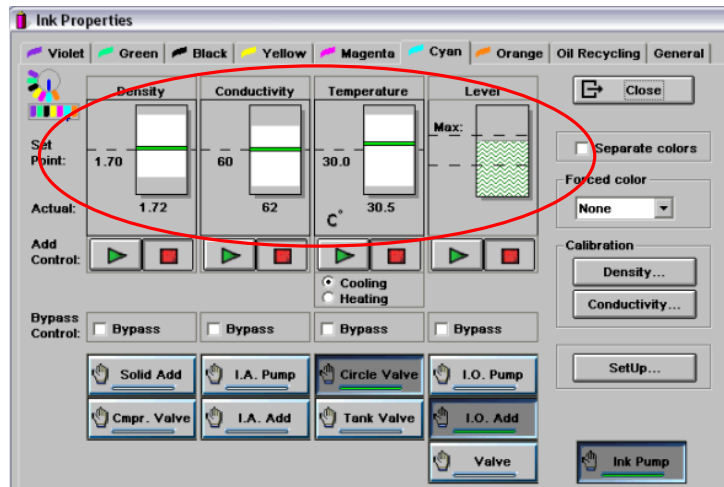
Note that not all devices and RIPs can adjust CMYK densities.

11.3.1 Adjusting density on HP Indigo

Ink condition: Make sure all indigo ink have a good condition including density with conductivity. If the ink is not good, calibrate with CDM or rebuild the ink.
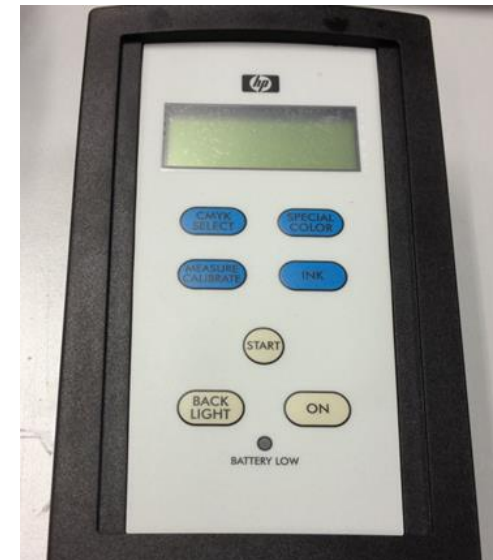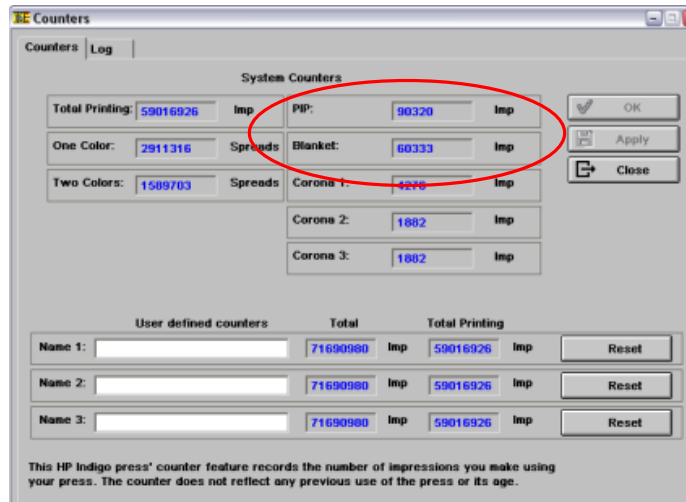

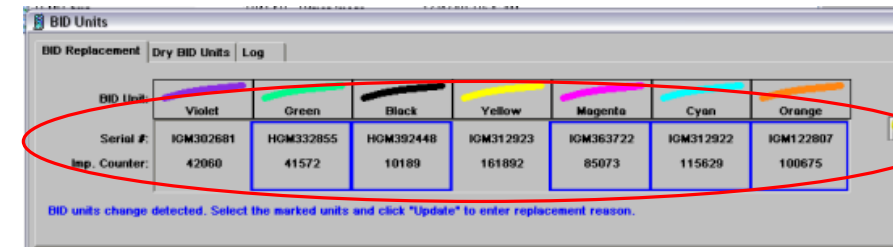Keep the ink condition to standard: > Diagnostics > Ink:

Consumables: Do not use too old PIP or blanket. Between 2,000 clicks to 30,000 is best. If it is older, replace it. If it is too new, run some print jobs before calibration. The BID is best below 300,000 clicks.
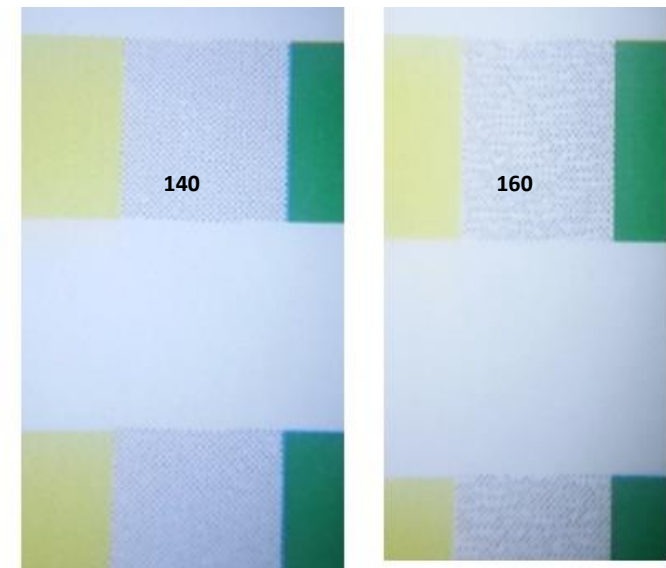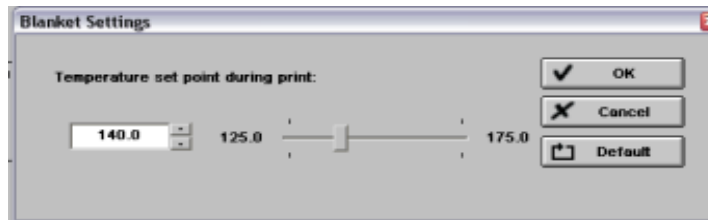
> Diagnostic > Counters:

> Consumable > BID units:

Blanket temperature: Set the blanket temperature to "140". This will enable reproduction of highlight dots. Too high a temperature will cause highlight dots to disappear.
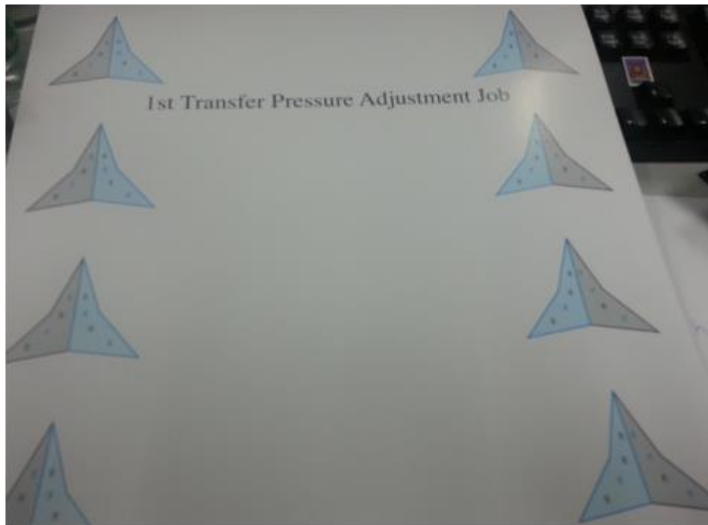

> Consumables > Blanket > Temperature > Settings:

First Transfer calibration: Calibrate again if it is essential to change the blanket temperature, for instance for heavy ink coverage.

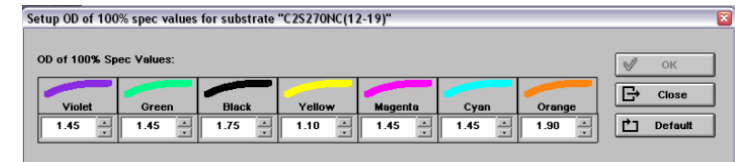> Adjustments > First Transfer Calibration:

Calibrate ILD instrument: Run a complete ILD calibration to ensure the internal densitometer is correct. Cross check with EyeOne Pro or SpectroEye. (Note: Internal instrument is always Status T.)

> Adjustments > ILD calibration > Full ILD calibration:

Full Color calibration: Run a full color calibration by the default setting. The press will be calibrated to 15 points on the TVI curve for each ink.

> Adjustments > Color calibration > Full color calibration:

Print and measure: Run a job with a PrintSpec strip, with these RIP
ticket settings:

Make sure ICC colour management is off, by setting the CMYK Input
Profile and Emulation Profile to None:
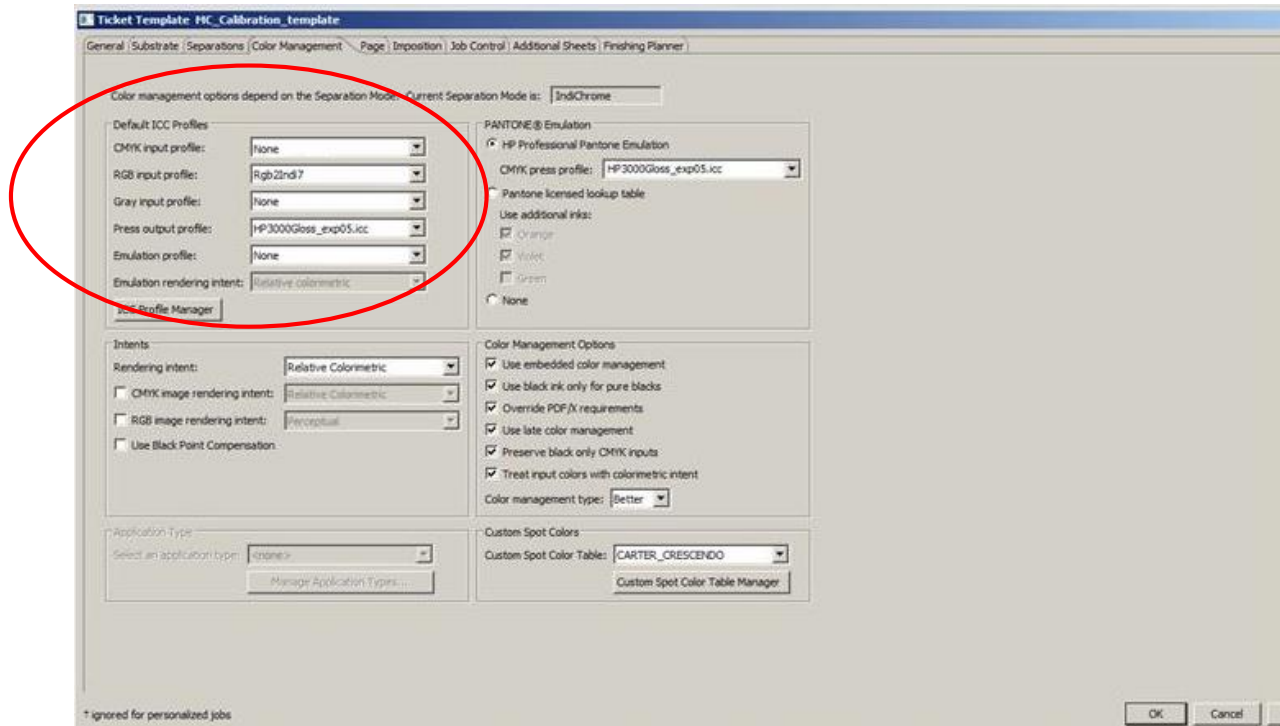
Measure the strip and look at the densities and CIELAB values on the
Summary page. If the solid colours are out of specifications, adjust
the density on the Indigo and run the job again.

**The easiest way to calibrate the Indigo is to first correct densities,
and then measure and correct the TVI curves.** If you cannot get the
CIELAB values for the solids within your tolerances, you might need
to generate an ICC-profile, that can convert the solids. (Typically for
the magenta.) This is done after you have set up the correct TVI
curve (LUTs) as described in the next chapter.

11.3.2 Adjusting density on Creo SPIRE

Not all versions of the SPIRE RIP let you adjust the density of the solids. If the function is supported on your RIP, you will find it under **Tools > Settings >Color**, where **Calibration method** can be changed from **Target** to **Auto Adjusted**.
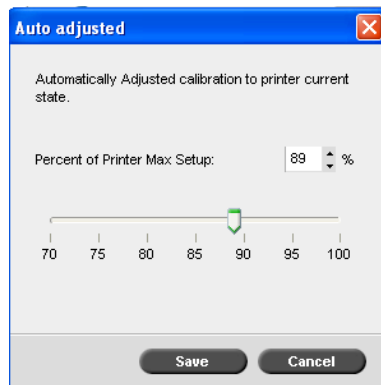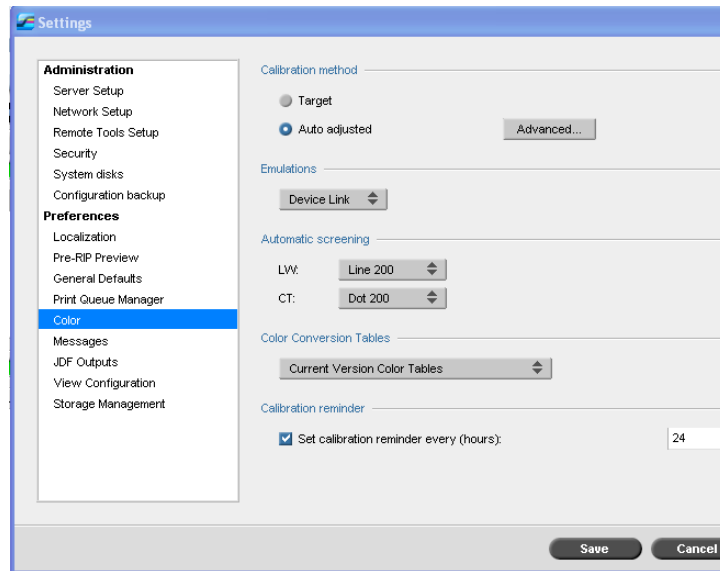
Note that this one slider affects all the four process colours, which cannot be adjusted individually. You might have to settle for a compromise based on all four toners. After calibration, a new density curve is automatically saved on the RIP for both "Normal" and "Saturated" print. You can test both and see which ones give you the best density values. This setting must thereafter be set as default for the relevant print queues.

11.3.3 Adjusting density on EFI Fiery RIP

Go to **Server > Manage Color…** from the main Command Workstation window:
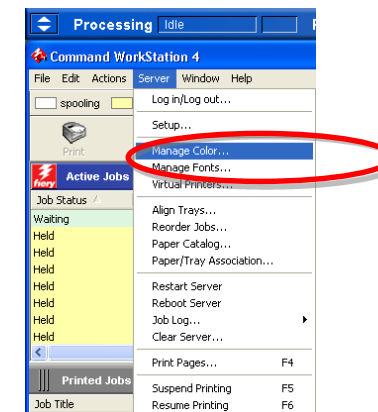
This opens ColorWise Pro Tools, where you click on the **[Profile Manager]** icon:

The Profile Manager window that opens is used for managing the ICC profiles on the RIP. You can use a standard profile that was delivered

with the RIP, or a customized profile you have made yourself (for example an ISO Coated v2 / Fogra39 based profile where you have fine tuned GCR settings to fit your press and paper). This profile must be active in Output section of the window. Double click on the ICC profile within the Output box, and the Color Editor opens:
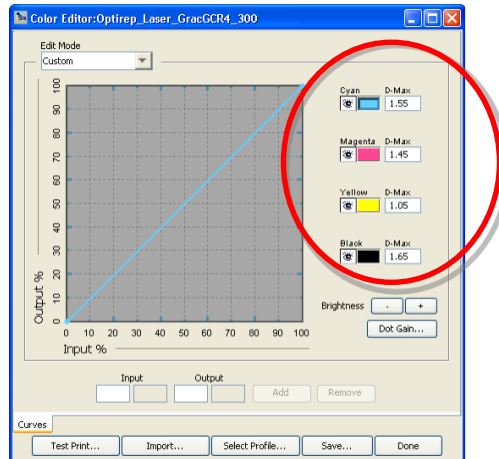

In this window you can type in the desired density values from PrintSpec. Note that the calibration routine on EFI Fiery RIPs are always Status T, so even if you use Status E for offset work or in PrintSpec, you must use a Status T Standard in PrintSpec to obtain the target values. There is a big difference in readings of yellow ink and toner between Status T and E, so this is important. When you later measure prints in PrintSpec you are free to use both Status T and E.

At this point, the curves remain linear. Save the edited ICC profile and set it as default in the main Profile Manager window.

11.3.4   Adjusting density on EFI Splash RIP

In ColorCal, click on **[Be An Expert]**, adjust a preset such as Euroscale and save it under a new name. The go to ColorCal preferences and choose this new setting under **Verify Against**:
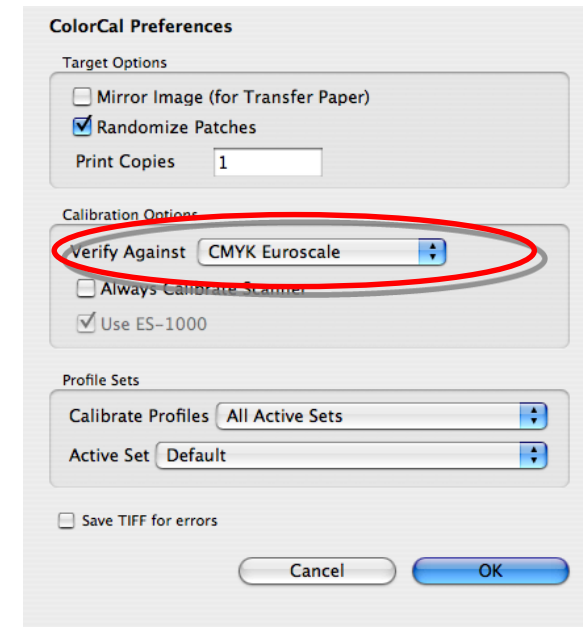
12 Calibrating a press with PrintSpec
Part 2 TVI Curves

12.1 Before you start

Only adjust curves from press sheets that match the wanted gamut in terms of CIELAB and density values. You cannot adjust curves first and ink levels second.

If you are not familiar with the different curve types, please read chapter 2 of this manual first.

PrintSpec gives you all curves in 5% or 25% increments. With most RIPs and screening types you can work with 25% increments and expect a smooth natural curve as a result.

With PrintSpec you can also do iterative curve adjustments, adjusting on top of existing curves with all RIP and workflow systems. In this case you do not start with linear plates, but use a test job or production orders where a current calibration curve is active.

The next pages show you how to do the curve calibration with the most common RIP and workflow architectures. Start by identifying which category your particular system is in, and then proceed according to the flowcharts.

There are three main types of RIP & Curve interfaces:

3-curve RIPs, where you can access Measured, Target and Calibration values:

- Kodak Harmony
- Heidelberg Prinect

2-curve RIPs, where you can access Measured and Target values. The Calibration curve is calculated automatically and hidden from the user:

- Fujifilm Celebrant & XMF
- Agfa Apogee
- Esko Automation Engine with Curve Pilot
- HP Indigo

1-curve RIPs, where only the Calibration curve is used:

- Global Graphics Harlequin RIP
  (Harlequin can actually be used both as a 2-curve and 1-curve system. Iterative calibrations are easiest when used as a 1-curve system.)
- Screen TrueFlow
- EFI Fiery
- Creo SPIRE
- Xerox FreeFlow
- Hell HelioRIP for Gravure

12.2 Working with a 3-curve RIP

Some workflow systems allow you to work with 3 distinct curves:
Target TVI curve, your Measured TVI curves and the Calibration Curves.

Recommended procedure:
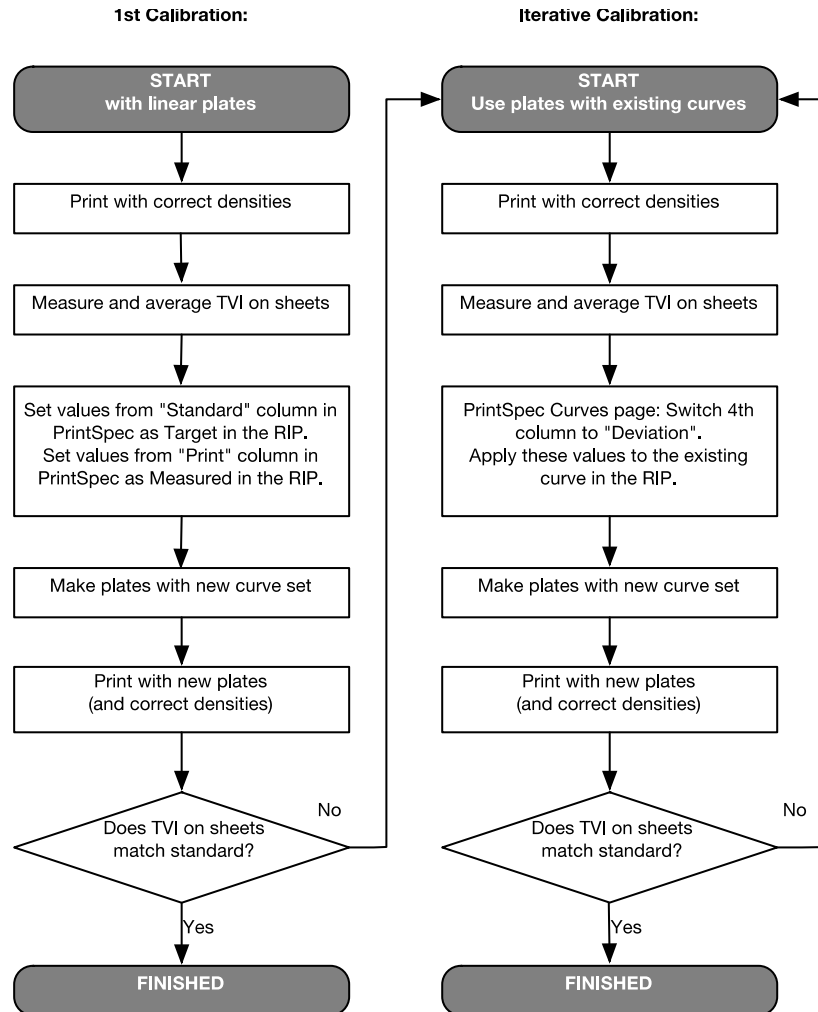
12.2.1 Kodak Harmony

1st Calibration:

After you have measured sheets printed with linear plates, you go to the PrintSpec **Press Calibration** page. Unless you have very high screen rulings or special issues (like flexo highlight dots), it is fine to set the **Sample Interval** drop-down menu to 25% increments.

In Kodak Harmony, you start by taking the numbers from the **Standard** column in PrintSpec, and saving these as a **Target** curve in Harmony. Go to **File > New Curve > Target…**: