

Flexografix Customer Fingerprint Planning Guide

Why Fingerprint?

Fingerprint your press(es) in order to define the dot gain characteristics of our pre-press, proofing, platemaking and your printing processes in order to accurately calibrate and maintain control of our contract proof to your press

- Your fingerprint is specific to your printing environment, and that of our internal Pre-Press processes – don't expect to use someone else's curve and get accurate results.
- Many times it's press-specific, unless you've standardized your anilox rolls and your presses currently reproduce about the same dot value. Either way, all presses should be fingerprinted and the results analyzed before that determination is made.

Planning your Fingerprint

- Ask your key, knowledgeable and experienced Tradeshop (Flexografix) and Ink suppliers to help with the planning and execution
- Conduct a planning meeting with all involved – important to guaranteeing the success of your investment in press time and materials
- Assumes that your printing processes are in control and presses in proper working condition. If not, ask for help from your suppliers!

Control Your Press

- Strive for stable mechanical condition
- Fix the areas of your press that you know are in need of repair prior to your fingerprint

- Any mechanical issue, which impedes your ability to print consistently, will bias your fingerprint – and could yield an undesirable match between proof & print. Don't wait - fix it now!

Evaluate Your Substrate(s)

- There are a wide variety of substrates which you could have to print process work on for your customers
- Pick the most popular to evaluate during the fingerprint – those which accurately represent the substrates you expect to run in production
- Optimize your plates, inks and stickyback tape for your most popular stock, then run the other(s) afterwards to determine the variation from one stock to another

Material Selection

- Your fingerprint is NOT the best time to evaluate new materials for your pressroom. That can be better accomplished beforehand in a print optimization program followed by extended production tests. Based upon our extensive experience in the area of material selection, we would like to advise you through this process.
- Test your prospective new products thoroughly in production with your trusted operators prior to committing to them in your fingerprint. Please don't design these unknowns into your fingerprint. If your new product selection doesn't stand the test of time, we may have to re-fingerprint.

Ink Selection

- Involve your ink supplier in the process
- Generally speaking, a thin film of high-strength inks will enable you to:

- Match your proof's color gamut
- Print clean
- Reduce waste
- Increase press running speeds
- Strong enough to better FIRST density targets on your selected substrate
- Strive to match Kodak Approval color standards for Process Yellow, Magenta, Cyan & Black. We'd be happy to supply you with Approval swatches to match.

Anilox Roll Selection

- Invite your anilox supplier to evaluate the current condition of your process rolls
- Evaluate your anilox maintenance program
- Make recommendations to improve effectiveness of your program
- Worn, plugged or damaged rolls will hinder your ability to print consistently and detract from the accuracy and repeatability of your fingerprint

Stickyback Tape Selection

- Familiarize yourself with the various options available to you
- The appropriate selection is critical to effectively printing process work
- Managing through conflicting areas of the tonal scale:
 - Low density (soft) foams = lowest highlight dot gain, compromising solid density and shadow detail – compromising print contrast
 - Firm density (harder) foams = excellent solid density & shadow detail at the expense of increased highlight dot gain. But, high density foams will hinder your ability to print whites, chromes and vignettes which “fade to zero”

- A compromise is what you're left to manage through, and your final selection should be based upon the substrate(s) which you are printing on.
- Some high quality printers mix different foam density tapes (from the same manufacturer) within the same job

Plate Selection

- Ask us to educate you on the various options currently available to fit your specific application

- Effects of plate durometer:

	<u>Higher</u>	<u>Lower</u>
Required impression	Less	More
Dot gain	Less	More
Print sharpness	More	Less
Tonal reproduction	More	Less
Durability	More	Less

- Effects of plate relief:
 - Shallow relief
 - Improved highlight stability
 - Less main exposure required (in an analog environment)
 - Less film-to-plate gain
 - Smaller minimum plated dots
 - Improved print contrast
 - Increased plate life
 - But, may cause increased plate lift . . . we can help recommend common practices to reduce the occurrence of lift!

Running the Fingerprint Target

- Make sure all involved (operators, supervisors, suppliers) understand the objective
- Not a print optimization program
- The goal is to confirm and quantify current printing conditions

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- Print under normal, controlled operating conditions – including production materials at desired speeds
- Document anilox position in press by serial number to insure exact positioning in production
- Enables duplication of fingerprint results in production
- Confirm Solid Ink Densities to FIRST Targets

- For Narrow Web, Film
 - Yellow 1.00 (+/- .05)
 - Magenta 1.20 (+/- .07)
 - Cyan 1.25 (+/- .07)
 - Black 1.40 (+/- .07)

- For Narrow Web, Paper
 - Yellow 1.00 (+/- .05)
 - Magenta 1.25 (+/- .07)
 - Cyan 1.35 (+/- .07)
 - Black 1.50 (+/- .07)

- For Wide Web, Film
 - Yellow 1.00 (+/- .05)
 - Magenta 1.20 (+/- .07)
 - Cyan 1.25 (+/- .07)
 - Black 1.40 (+/- .07)

- For Wide Web, Paper
 - Yellow 1.00 (+/- .05)
 - Magenta 1.25 (+/- .07)
 - Cyan 1.25 (+/- .07)
 - Black 1.50 (+/- .07)

- Inspect to insure all elements are printing clean

Importance of Gray Balance

- Gray balance is a **CRITICAL** indicator of a valid fingerprint, as well as the barometer which should be used to gauge the accuracy of the color separation
- Check Gray balance before approving the fingerprint – in color-correct lighting conditions
- We separate assuming gray balance, if you can't achieve a neutral gray, you are not going to accurately reproduce our proof
- Gray balance **MUST** be included on your print target for process control

Running the Fingerprint

- After it's decided that all elements are printing well, run 5 minutes at desired speed
- Document running conditions
 - Press
 - Substrate
 - Ink system & viscosities
 - Anilox volume, line screen, serial number and position
 - Plate type
 - Stickyback type
 - Press speed

Print Analysis Tools & Techniques for Your Fingerprint and Print Target

“If you can measure it, you can control it!”

Measuring Solid Ink Density

- Density readings taken in “Density – P Mode”, taking the hue of your substrate into account. Zero out on your substrate first for an accurate reading!
- Densitometer set in “Status T” reference standard (accepted in U.S. for color reflection densitometers)
- Calibrate regularly
- Only for measuring Process Y, M, C & K

Dot Gain Analysis

- Densitometers’ measurement of dot gain includes:
 - Physical or Mechanical dot gain – the physical growth of the halftone dot
 - Optical dot gain – how the light appears to the human eye, due to the refraction of light on the substrate
 - This exaggerates the actual dot size
 - Great for process control, but not for building a compensation curve!

Optical vs. Mechanical Gain BetaFlex Model 333-334

- Dot Gain Analysis in Physical Gain Mode (unlike densitometers which read physical + optical gain)
- Data useful for building compensation curve
- Quantifies Pre-Press and Pressroom Printing Conditions

- Utilizes Digital Camera and Links to Computer for Software Analysis
- Measures Film, Plate, Dot-Based Proof and Print

Evaluate Gray Balance

- Critically important to an accurate process reproduction
- Visual evaluation next to a like-sized black tint patch is very effective as a print control target
- Goal is equal reflection of Yellow, Magenta & Cyan producing a neutral gray

Evaluate Print Contrast

- Indicates the ability to hold shadow detail
- Good indication of print quality
- Shadow detail carries important information in many images
- Values correlate well to the subjective evaluations of print quality
- “Flat” = low print contrast
- “Jumps off the sheet” = high print contrast
- Measure using densitometer in print contrast mode
- Or use equation $PC\% = (Ds - Dt) / Ds \times 100\%$
- Ds = Solid density
- Dt = 70% Patch density
- FIRST Standards
 - Yellow $\geq 15\%$
 - Magenta $\geq 20\%$
 - Cyan $\geq 20\%$
 - Black $\geq 20\%$

**Contact Flexografix if you
need additional information.**