

“The List”

Steps to Implement and Maintain Print Consistency

I. Benefits

- A. Meets Customer requirements for consistency across print jobs, plants, print processes.**
- B. Defines accountabilities to all who have input to printing process.**
- C. Allows operator to more easily determine cause of print problems.**
- D. Allows same job to be run same way, regardless of operator.**
- E. Reduces costs:**
 - Time/scrap to get on color
 - Returns/complaints for quality consistency

II. Implementing the Process

A. Preparation

1. Build the Team

- Select Team Champion
- Define roles
- Define responsibilities
- Define inputs
- Define outputs

2. Train the Team

- Team Building exercises
- Communication Skills
- Technical Skills
- Color Science
- Color Measurement
- Densitometry
- Color Management
- Basics of Engraving
- Basics of Ink
- Basics of doctor blade use
- Basics of Impression Rollers

3. Specify the Color Targets

- Process Colors
- Density targets and tolerances
- L*a*b* targets and tolerances
- Special Line or Spot Colors
- Density targets and tolerances
- L*a*b* targets and tolerances
- White substrates or ink
- Opacity requirements
- Surface properties
- Smoothness

- Absorbency
- Preliminary ink formulas for each substrate
- 4. Run ICC profiles for all devices used from design to production except press.**
- 5. Specify finished product requirements.**

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B. Plan First Fingerprint Test

Team meets to decide:

1. Design of first test cylinder

- Range of stylus geometries
- Range of cell compressions
- Range of line counts
- Special or spot colors to include
- No compensations in engraving first test cylinders

2. Procedures to follow at press

- Ink systems to be evaluated
- Substrates to be evaluated
- Sequence of ink formulas and viscosities
- Design Press condition Documentation Sheet
- Define Print Quality measurements

3. Normal Preventive Maintenance to be done

- New doctor blades
- Measure impression durometers
- Gauges, meters, instruments, devices calibrated

C. Run First Fingerprint Test to Establish Capabilities

1. Normal Press speeds and conditions

2. Determine acceptable ranges (lowest/optimum/highest) of:

- ink formulas
- viscosity
- blade angle
- blade pressure
- impression roller durometer
- impression roller pressure
- Drying settings
- For: best dot quality at acceptable density across various cell compressions and line counts.

3. Document ranges of all.

4. Take press print samples and attach Document sheets.

5. Document optimum press conditions with clear ranges for:

- Ink formulas
- Ink Viscosities
- Blade settings
- Impression settings
- Dryer settings

6. Take wet ink samples at optimum print conditions

- Make standard proofs for preparing ink for next test.

7. Measure and quantify printed target results.

D. Plan Second Fingerprint Test

Team meets to discuss results of first test and decide:

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1. Design second test cylinder

For each color, choose best cell compression and line count for best ink system with known ranges of ink formula and viscosity.

Decide on minimum and maximum cell volume.

Decide on test target elements for:

troublesome process work

neutral 3 color gray patches

UCR/GCR

Overprints for process and line colors to define and increase color gamut

Engrave linear target.

2. Procedures to follow at press

Press condition sheet and settings

Sequence of ink formulas and viscosities

E. Run Second Fingerprint Test to Verify Capabilities and Optimize

1. Normal Press speeds and documented press conditions from first test.

2. Adjust ink viscosities and formulas within ranges to achieve color targets.

3. Take print samples for graphics measurements and attach documented press condition sheet.

4. Take wet ink samples at optimum print conditions and make standard proofs for next test.

5. Verify previous results and adjust low/optimum/high ranges for all variables.

6. Revise press optimums and ranges.

7. Measure printed samples and determine

First engraving compensation curves for process colors

3 color neutral curves

UCR/GCR specifics

Color gamut including Overprints of process and/or line colors

F. Run Third Test to Characterize

1. Engrave cylinders, Repeating target design from second test with all elements and applied corrections.

2. Normal Press speeds and documented press conditions from second test.

3. Adjust ink viscosities and formulas within ranges to achieve color targets.

3. Take print samples for graphics measurements and attach documented press condition sheet.

4. Take wet ink samples at optimum print conditions and make standard proofs for future production runs.

5. Measure printed samples and determine if curves are correct.

6. Team meets and decides if repeat test is necessary.

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III. Maintaining Consistency

- A. Run ICC Profile of final press test and use for all production runs.**
- B. Establish Production Run Targets elements to be engraved on all production copy.**
- C. Use Press condition sheet and settings for all production runs.**
- D. Send to press ink measured to accepted tolerance to standard proofs of established ink formulas.**
- E. Run to established color and quality targets.**
- F. Communicate any problems that cannot be corrected by adjustments at press within established Press condition sheet and ink viscosity and formula ranges.**
- G. Re run test three cylinders any time there is a change in the process:**

Ink

Substrate

Cylinders

Engraving

Impression Rollers

Treaters