Density
The amount of ink applied to a substrate.

Dot Gain
The increase in diameter of a halftone dot during the prepress and printing process.

Lab Values
A technical way of measuring the color of the ink to ensure proper hues, lightness and saturation.
The Color Bar

Belmark Color Management: Pressroom Color

First Patch (100% Solid Patch)
- Measures ink density
- Determines correct color

Second Patch (50%)
- Measures dot gain
- Determines proper press set-up

Third Patch (MinDot Patch)
- Measures the minimum printable dot size
- Measures dot gain in highlight area
- Determines if smaller dots are printing correctly
How we match PMS/Spot colors

Step 1: Substrates and inks are determined
Step 2: Inkroom mixes formulas to match color
Step 3: Inkroom offers an Ink Drawdown to show color accuracy on substrate
Step 4: Inks are printed from plates separate from the CMYK plates
Materials and Color

Substrates affect the printing process in two different ways:

1. Optical Difference
   The optical characteristics of a substrate affect the appearance of the printed graphics.
   Factors include:
   - Brightness of stock
   - Shade
   - Spectral reflection

2. Physical Difference
   Ink interacts with substrates differently depending on the physical properties of the material.
   Factors include:
   - Surface topography
   - Porosity

We print on several types of substrates including:

- Semi-gloss label material
- SBS carton material
- Clear poly
High Density Aniloxes
Water & Solvent
Clear, White and Metalized

<table>
<thead>
<tr>
<th></th>
<th>DENSITY</th>
<th>DOT AREA</th>
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<tr>
<td></td>
<td>Min</td>
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<td>Black</td>
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<td>1.45</td>
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<tr>
<td>Orange</td>
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<tr>
<td>Green</td>
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<td>1.00</td>
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<tr>
<td>Reflex</td>
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Belmark’s standards for density, dot gain and hues result in predictability and repeatability.

How our customers benefit:
- Reprinted projects will remain consistent with these standards
- Images, colors and logos will match on different substrates and presses
Prepress

Belmark Color Management: The Process

1. Design
   Belmark works with the customer to determine how the best print results can be achieved while maintaining the integrity of the design.

2. Press Characterization
   Data is collected in a press characterization and used to create a proof that matches press conditions.

3. Proof Verification
   A proof is created based on the press characterization. Upon client approval, plates are made.

4. Job Assembly
   Additional print requirements not established in the press characterization are determined.

5. Proof Control
   The proof is measured against the targets and standards created in press characterization.

6. Plate Control
   Measurements are taken and controls are put in place to ensure the plates are within tolerance.
Optimize press conditions
Simulates the conditions used when the press characterization was created to ensure consistent repeatability.

Measurements and controls for every printed item
- Density
- Dot area
- Lab values

Post-run procedures
- In-process checklists created
- Samples retained
- Records are documented for future use
Consistency = Predictability

Press characterization—also known as fingerprinting—is the key to process control.

How our customers benefit:
- Saves time on press
- Reduces material costs
- Increases predictability
- Provides quality management data
Types of Proofs

Kodak Proof

Features:
- One of the best high quality proofs
- Accurate for color and image quality

Color Print Proof

Features:
- Produced from laser color or inkjet
- Used to proof type, logos, barcodes and overall layout
- Inexpensive and quick

Web-to-Web® Proofs

Features:
- Electronic PDF is sent via email or posted to our website
- Quick and convenient

Press Proofs

Features:
- Proofs created directly from the press
- Produced cost effectively on Web-to-Print®
Color Proofs

The primary role of a color proof is to predict what a job will look like when printed. Using a color proof—and knowing what to look for in a proof—saves time and money by allowing changes to be made before a job goes on press.

Color Proof Limitations

- Simulating a PMS color or a special match color is difficult with any proofing system.
- Substrate and gloss level also affect overall appearance.

Spot Color Proof Solution

- An Ink Drawdown is a sample of a PMS color or a special match color rolled out by hand on a sample of the substrate on which an order will be printed.
- Ink Drawdowns are available upon request.