

# Cost Saving with Color Management

Date: 20 Oct 2009 Edition:1

## Keywords:

Color Management  
GCR  
ICC Profile  
Ink Saving  
Linearization  
Profile-Xpert Print Pro  
Spectrophotometer

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## Abstract:

This white paper explains how Color Management helps reducing costs in Digital Large Format Printing.



**BARBIERI electronic snc/OHG**  
Via I.-Seidner-Str. 35  
39042 Bressanone/Brixen – Italy  
Tel. +39 0472 834024  
Fax +39 0472 833845  
[info@BARBIERIElectronic.com](mailto:info@BARBIERIElectronic.com)  
[www.BARBIERIElectronic.com](http://www.BARBIERIElectronic.com)

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## Introduction

Same as in every business also in Digital Large Format and Industrial Printing costs can be split up in fixed costs and variable costs.

Fixed costs are printers, the building etc. These, as the term states, are fixed no matter how many prints will be printed or sold.

Variable costs at the other side influence significantly the cost of every single print and vary also basing on the amount of prints or printing jobs. Some of these variable costs are the media used, the ink, the operators' time, the time the printer is not working due to set up process.

This document shows the possibilities Color Management offers to reduce these above mentioned variable costs in particular ink, time (operators' and printers') and the media.

## Ink Saving



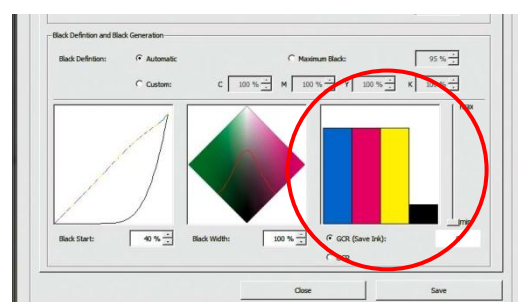
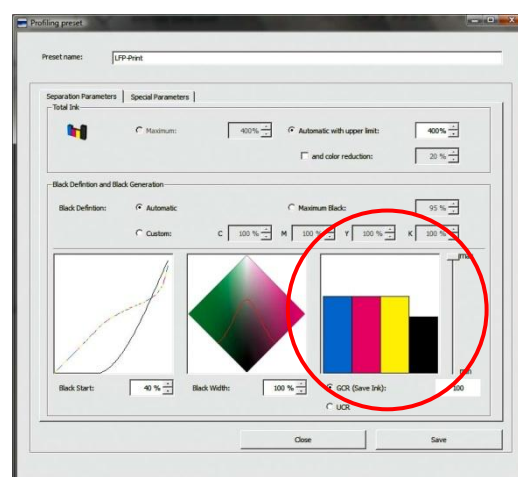
Ink, no matter whether UV-cured ink, solvent ink, water-based ink, latex ink, is the cost factor which is the most crucial one and where cost saving can be most effective.

Ink saving using Color Management is done by optimized GCR. GCR is the abbreviation for gray component replacement. It is a separation technique where black ink is used to replace a portion of the unwanted component in a saturated color. It also replaces grays made with three colors, with black.

Software that is able to create ICC Profile with „Ink-Saving“ (optimized GCR) is Profile-Xpert Print Pro (free trial at [www.Profile-Xpert.com](http://www.Profile-Xpert.com)).

The parameter GCR determines to what degree the black ink is used to replace cyan, magenta and yellow.

This parameter can be defined individually according to operators' needs. As higher GCR is set as more ink will be saved. But the other side of the coin is if the GCR is set to high the print will become flat and without structure. Therefore the right way in the middle has to be found. This depends mainly on the media used and the kind of image printed.



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Standard ICC Profile



ICC Profile with ink-saving



Pictures: roman16 bvdm Reference Images [www.roman16.com](http://www.roman16.com)

There is visually no difference between these two images even if the image on the right side will be printed with 25% less ink



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Standard ICC Profile

ICC Profile with ink-saving



67%



57%



82%



74%



83%



71%



75%



80%



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On the illustration above we have separated the image into the 4 channels (CMYK) and measured the ink coverage on one point. We gain an ink saving of total 30% in cyan, magenta and yellow with an increase of 5% black only. This leads to an average ink saving of 25%.

## ***Ink-Saving: Figures***

Figures taken from a printing lab using Barbieri Color Management equipment (December 2008)

- 25% saving of ink (see calculation above).
- Average UV printer consumption: approx. 500 liter / year.
- Cost UV ink: approx. €100 / liter which results in yearly expenditures of approx. €50.000 on ink each printer

**By 25% ink saving the yearly gross saving is about €12.500 per printer.**

## **Time Saving**

...due to immediately right results and automatic and fast measurements.



If Color Management is applied in the right manner and the whole workflow is done including linearization of the printer and creation of the ICC profile for the media, the desired color true output will be reached immediately. Thanks to this no multiple sample prints have to be printed in order to come step by step closer to the desired color appearance which would lead to wasted operator and printer time. Furthermore the calibration process has to be done only once for each media (as long as the color output remains stable) and not for each print job. By means of an automatic measuring device (spectrophotometer) the operator during measurement can pay his attention to other tasks and is not occupied by measuring manually.



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## Save Media

...due to getting the right results immediately.



Same as above, thanks to applying Color Management in the right manner also media will be saved as multiple sample prints are not needed any more.

Printing labs who apply Color Management will also spend fewer medium because they will get less customer complaints about wrong color appearance.

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