

# ISO 12647-2

## What's in it for me?

During the last few years many questions have raised about the new process standardization in the graphics industry: ISO 12647-2. Even though more and more companies get familiar with this standard, it is still not clear what they are supposed to do with it. This information will briefly try to clarify the standard, to whom it may concern and what it means to printers.

### From craftsmanship to process industry

The printing process has always been considered as a real profession. The whole graphic industry is full with experienced people, with a lot of skill and professional knowledge.

The software packages we use today should be able to produce every possible graphical expression, with up to 141 different preferences.

When we take a look at the traditional printing process, we see that almost every press operator is really trying to tune



The last 20 years we have seen many changes. Nothing is the same anymore and everything is done digitally, mainly in the prepress department.

While the use of information in a digital format makes life easy at some places, the digital flow also creates a lot of problems. The results of image manipulation software applications are fully dependant of the settings of the user. And believe me: most users have different settings.

and manipulate the printing press, to get to the best color quality out of his machine. There are many options to manipulate: use of different sorts of ink, raster size, paper types, etc. just to get the best out of it. Of course, for the printer this is a very motivating process. He really can make things better. The graphics printing process is really "alive". This method can really be a good solution for small companies who 'control' the prepress and have an excellent relation with their customer.

The same way of preparation in every situation would really make things easy.

But things can go wrong. Especially when more suppliers (design, advertising studio, prepress, press) are involved. And when things can go wrong, it will go wrong. It will lead to reprints, a lot of disappointment, frustrations and extra costs.



### The printbuyer

The buyer of printed matter is especially interested in the ISO standard! Companies that can meet this standard, deliver a good, consistent and predictable print quality. Always the same color performance of your brochures and packaging – where ever you print it. That is a big advantage.

After some years of introduction, you can really say: the ISO 12647-standard is or will be accepted everywhere in the world, it brings better quality and it reduces the cost at the same time. What more do you want?

Maybe you still have second thoughts about the need for ISO 12647 and the implementation process, but we can assure you that your customers will want the new standard to be the minimum required quality level.

## Standardization of the production process

To be able to make your prints predictable, it is necessary that the process can be standardized. Within the digital production process, already many standards have been introduced successfully. Color separations, digital proofing, and color simulation in a monitor (softproofing) are based on ICC profiles. PDF files are created and checked via so called "Certified" PDF/X1 and/or PDF/X-3 standards (GhentPdfWorkGroup). More and more digital proofs are produced with a color control strip on the side, so that the user is able to check the color accuracy of the proof and see whether the proof is a good



simulation of the final print result (Certified proofing).

Of course, it is very important that the producer of the digital material, at the beginning of the production chain, knows what happens during the printing process and knows on what basis the final printing takes place. This is one of the main reasons why the industry has set up a standard.

For the (standard) printing process, many variables have been put together in a worldwide accepted standard: ISO 12647. This standard describes how standard printing should be and how the end result should look like.

It describes per paper type and per type of print process (offset, heatset, etc) the color gamut and Tone Value Increase (TVI). Based on this standard, independent institutes have produced ICC colour profiles, which means that everyone in the graphical chain exactly knows what the standard is, and can effectively use this standard in (his part of) the process.

By working this way, people create a transparent workflow. The digital document will be created according to the general accepted color standard, and the same standard applies during the prepress and printing process. As you can understand, there are many advantages in working with a standard. The behaviour of the colors have become predictable during the production process, from digital photography all the way to the final print process. This will reduce costs for corrections. Another advantage is that the print quality really improves a lot! Because the digital files are being prepared according to the standard, and also the proofs are produced according to the same standard, unwanted color shifts will be visible in an early stage of the process. As soon as the optimum ink thickness has been reached, the colors of the final print will be equal with the colors of the digital proof. No need for "lithographic work" at the printing press any more!

### ISO 12647 in short

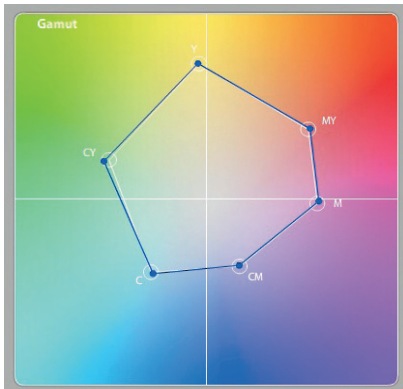
The standard has been introduced in 1996, based on the German Process



Standard Offset-Druck. It is a international accepted standard which is being setup and kept up to date by the ISO Technical Committees (TC 130). After the introduction, the standard has had a few updates. The last big update was in 2004. The standard has been divided in sub categories to describe the different print methods, The categories are: Offset and heat set rotation (ISO12647-2), coldset rotation (ISO12647-3), Gravure (ISO 12647-4), silk-screen (ISO 12647-5), flexo (ISO 1647-6), and digital proofing (ISO 12647-7).

The standard describes in full detail to which parameters the printing work should comply: description of the color gamut and TVI per category of paper (paper type), or – in other words – how does the print look like. The standard also describes the specifications of the inks which have to be used (for example ISO 2846-1 for offset and heat set rotation). The ISO 12674-1 describes the general definitions, like the specification how to measure colors and similar issues.

Fogra characteristic data and standard ICC colour profiles The last ten years several "official" ISO12647 press tests have been done and the FOGRA institute has measured and analysed the results of these tests. The acquired data is actually the photo spectral fingerprint of the standard produced print work, the so-called characteristic data. This data is being classified and have follow up names like FOGRA 17L, FOGRA 18L, etc. At this moment the FOGRA 27L-30L are the most well known,



the characteristic data based on the different kinds of paper within ISO 12647-2:2004, the present standard for offset. You will probably know these print results; they are the measured results from the Altona Testsuite. The FOGRA 39 and 40 have been released during Spring 2007. These characteristic data describe the paper types 1/2 and SC paper. The SC paper type is mostly used for heatset.

Based on this characteristic data it is possible to make accurate ICC profiles, which can be used in the print preparation process, for generating correct color separations and for accurate color simulation on a digital proofing system.

It is not necessary to create the ICC profiles yourself, it already has been done! The independent institute ECI (European Colour Initiative) has created the standard profiles. The profiles are free to download from the ECI website ([www.eci.org](http://www.eci.org)). So go ahead and use them!

By the way, Adobe uses the same characteristic data. Creative Suite 2 installs a standard ICC profile that is called "EuropeISOCoatedFOGRA27.icc". Although this profile is suited for standard work, the

build-up for black is slightly different from the profiles created by ECI.

### What profile for what kind of paper?

As mentioned before, there are different kinds of paper classes defined for the various printing techniques. The most familiar ones (offset and heat set rotation according to ISO 12647-2 and coldset rotation according to ISO 12647-3) are mentioned on this page.

### Changes for the printing office

In the flow to ISO standardization, one of the biggest changes for a printing company is the switch to process control by photo spectral measurements. In the old days, measuring the density was enough. But now people will have to check the colors with a spectrophotometer. This is an obligation in the ISO 12647 standard! This means that your printing company will need a spectrophotometer and that you will have to have adequate knowledge and skills of spectral measurement systems. Many companies can offer a training on spectral measurement systems.

### The ISO certificate

It is possible for any company in the graphical sector to be certified by the Swiss UGRA institute or the German FOGRA institute. There are many national institutes in the various countries who can do a complete ISO certification project. If your company want to become a ISO-certified company, it is recommended to ask an independent specialist to help you through all the required procedures. In general you can say that you can reach the status of "certified according to the ISO 12647", if you can show in a official audit that you produce your printed matter completely according to the ISO procedures and quality methods. The validity of the certificate is usually 2 years.

#### ISO 12647-2 Offset en heatset (web offset)

PT*	Description	ICC profile
1/2	Gloss and Matt Coated paper	ISOcoated_v2_eci.icc
3	LWC paper, heatset	ISOwebcoated.icc
4	Uncoated woodfree white	ISOuncoated.icc
5	Uncoated woodfree yellowish	ISOuncoatedyellowish.icc

#### ISO 12647-3 Coldset (Newspaper)

PT*	Description	ICC profile
-	Newsprint	ISONewspaper26v4.icc

\*Papertype



### **What happens next?**

Probably you haven't seen all your questions answered in this information about ISO 12647-2. What could be the impact on your technical and commercial organisation? How about paper and ink specifications? How do I prepare for ISO 12647-2?

These are all questions that can be answered by us. Koldenhof Grafimedia Expertise has been active for many years with advice and implementations in the area of color management. We give support to company's that are implementing the norm ISO 12647.

For more information:

The Netherlands:

[www.colormanagement.nl](http://www.colormanagement.nl)

[www.koldenhof.nl](http://www.koldenhof.nl)

[www.fogra.org](http://www.fogra.org)

[www.bvdm-online.de](http://www.bvdm-online.de)

[www.eci.org](http://www.eci.org)

[www.ugra.ch](http://www.ugra.ch)

[www.vigc.be](http://www.vigc.be)

[www.color.org](http://www.color.org)

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