

Why work with the European printing industry ?



INTERGRAF

International confederation for printing and allied industries a.i.s.b.l.

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Quality products in tune with the environment and the needs of society

Printing Industry in a nutshell

	Turnover	Number of companies	Number of employees
EU 27	€91 billion	123,000	900,000

(rounded up figures)

Working with a European printing company guarantees its customers not only superior product quality but also ensures that the highest standards required by European and national legislation are being met. These standards cover the choice of raw materials and the processes of printing, recovery and recycling of waste paper, as well as customer relations and relations with employees.

While the European printing industry can proudly point to the high standards of its products and production environment, we know very little about how seriously the same concerns and responsibilities are taken in non-European low-cost countries.

By choosing a European printing company, printbuyers are demonstrating that they are aware of the need to protect the environment and they can be certain that the working conditions in those companies are just and fair, an important principle for our society.

The entire EU printing industry regards sustainability as a guiding principle, and the industry has made great progress to ensure that its materials, processes and its practices are as sustainable as possible. Here are some examples:

1. Raw materials

- > In Europe some 50% of commercial forests are certified for sustainable forest management compared with less than 5% for Asia and Africa.
- > The *pulp and paper* industry in Europe works to strictly control air emissions, water consumption and waste-water treatment. Information on the environmental performance of paper products is provided through professional websites such as www.paperprofile.com
- > *Ink* manufacturers work within the European legislation on Labelling and Classification of Chemical Substances to guarantee safe use and high performance. EU legislation will soon include new measures known as “REACH” requirements.

2. Printing processes

- > The development of modern digital technology has significantly reduced the environmental impact of *pre-press* activities.
- > Most *offset printing* has a very low impact on the environment; some specific techniques such as heatset offset printing respect strict environmental standards.
- > *Publication gravure printing* used for printing magazines and catalogues (25% of EU printing business), tightly controls chemicals used in printing and recovers chemical residues in special recovery units.
- > More recent techniques such as *digital printing* open new opportunities for printing while generating little waste of chemicals or paper. Hybrid printing, flexography, screen printing, electron beam and UV techniques open the way for enhanced printing work and also comply with relevant environmental standards.

3. Waste paper recovery and recycling

The EU printing industry plays an active role in the paper chain and contributes to the recovery and the recycling of printed products.

4. Customer relationship

The relationship with the customer is precious to the printing industry and printing companies work hard to develop and protect those relationships. This is governed by many EU and national legal initiatives in such specific fields as:

- > *Intellectual Property Rights* are widely respected in all European industries. We respect the creative energy that goes into the development of content and design of printed material and work within the relative standards.
- > *Debt management* and the right to claim interest on late payment. Printing companies honour good business practice in respect of timely payments with their suppliers and expect that customers do the same.
- > *International Accounting Standards* which harmonize financial statements of listed companies and help to protect investors are respected as industry standard.
- > *General sales conditions* and good practices for e-auctions are developed by the relevant trade associations in the different EU countries. These principles have been embraced by printing companies and are subject to constant improvements.

5. Relationship with employees

The EU printing industry itself has a long tradition of social dialogue with employees and trade unions, leading to specific labour agreements. All these measures comply fully with ILO regulations.

The European printing industry is highly regulated and subject to very comprehensive EU and national legal constraints to protect customers, users, employees, investors, the environment and the public at large. This regulatory framework is complemented by voluntary initiatives, and together with continuous efforts to develop new technologies, they ensure important added value and guarantees for customers. In order to ensure transparency in the whole process of producing print in Europe and to stress the importance of this sector for European citizens, their economy and their environment, the printing industry has taken the initiative to create this document.

The printing industry looks to the future

In a constantly evolving world of technological change and consumer choice, the printing industry is at the forefront of innovation to meet customer needs. Printed communications are still the preferred choice by consumers but now co-exist with other forms of communication to produce a rich mix of communication options.

Printing companies are fully aware that an innovative offer is the best ally to ensure the long-term competitiveness and the adaptability of a whole sector to new market trends. The level of investments in modern technology is about 7% of the sector's turnover. Only few sectors experienced over a very short period of time as many technological and structural challenges as printing. Work in the pre-press area particularly benefits from many new developments, such as electronic imaging, and constant improvements in the treatment of electronic data.

Full colour management systems, together with the digitalization of production processes themselves, enable substantial new quality standards throughout the printing process. New market segments appear, making the printing industry a part of the wide "communication sector", complementing printing with other "added value services". The purpose of these services is to assist printbuyers in areas where printers can offer extra functionalities with greater efficiency than those available to them in their own premises.

Most obvious examples are :

- > The introduction of personalization features in print
- > The management of databases
- > The production of short runs and electronic storage for later runs
- > The production of electronic versions
- > Cross-media publications
- > Comprehensive communication solutions
- > Web-based communication solutions
- > E-business solutions
- > Routing and dispatch, storage facilities, etc.

As well as creating additional value for their customers, the integration of these new services provides for an extended dimension of the communication strategy of print buyers.

Raw materials

- > Greatly increased environmental awareness in Europe, support from authorities and co-operation between industry partners led to significant success in achieving **sustainable management of forest resources**. In Europe, about 50% of commercial forests are certified for sustainable forest management, the highest level of certification in the world. In other parts of the world, particularly Asia and Africa only very modest percentages of forestry resources are certified, often below 5%. In North America the level is around 30%. Europe is able to satisfy most of its needs for paper raw material from its own resources. Only 11% is imported, mainly from America.
- > The **paper production process** itself is regulated by a comprehensive legislative framework, which comprises, among others, the European IPPC Directive (Integrated Pollution Prevention and Control). Pulp and paper mills tightly control air emissions (Sox, Nox, CO²)⁽¹⁾, water consumption and waste-water treatment, both from virgin and recycled fibre production, as well as the biological impact of effluents. The chemical and mechanical pulping of fibres, as well as bleaching, are also under strict controls. These provisions are complemented by energy consumption considerations.
- > European paper buyers as well as the general public are being informed about relevant environmental aspects related to pulp and paper production, including product composition and emissions, wood procurement and environmental management through "**Paper Profiles**", which are prepared at the initiative of the industry, and which are available from the paper manufacturers online or as hard copy. These enable professional paper buyers to be informed about characteristics and environmental performance of paper products. *(More information can be found at www.cepi.org).*

(1) Sox : Sulphur Dioxide and other sulphur oxides
Nox : Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules
CO² : Carbon dioxide

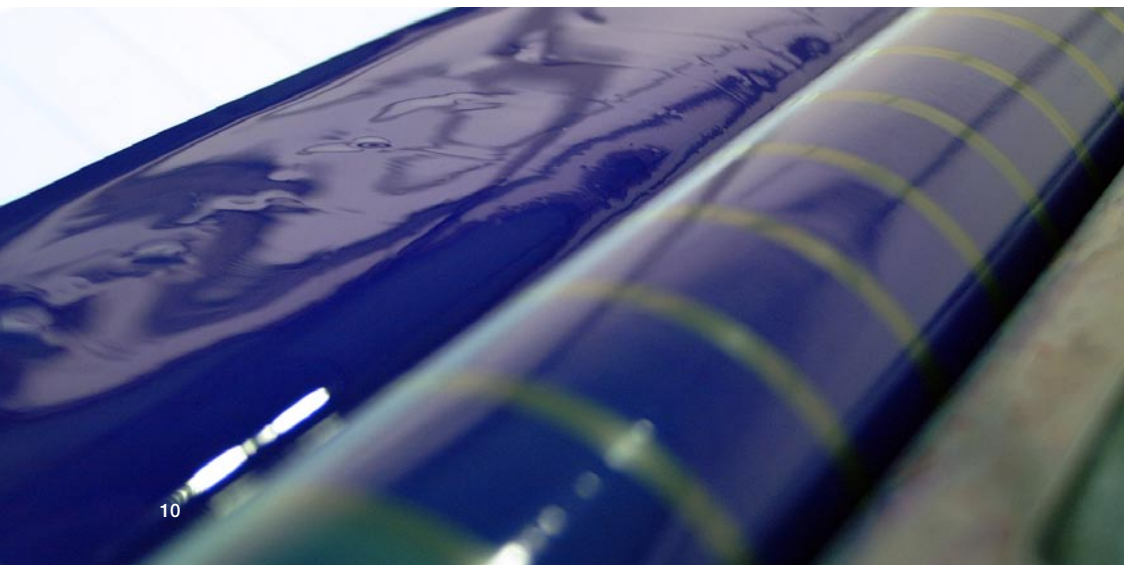
- > On the **ink manufacturing** side, the industry has to implement conclusions from several European directives on the potential toxicity of chemical substances known as European Directives on the Labelling and Classification of Chemical Substances. Ensuring a high level of performance and safe use of inks has been a constant concern of European printing ink manufacturers. EUPIA, their European association, established a regularly revised “exclusion list” of chemical substances, which enables manufacturers to comply more easily with the European legislation on the classification and labelling of dangerous substances. *(More information can be found at www.eupia.org)*
- > The European legislative package will, in the short to medium term, include the implementation of its new legislation on chemicals, known as **REACH** (Registration, Evaluation and Authorization of Chemicals). It will affect paper and ink production, and also printing activities as downstream users of chemicals. The aim of REACH is to provide additional information on chemical substances, such as pigments, dye colorants, and also on their uses. REACH also defines adequate safety measures in relation with identified hazards. Other materials used in the printing industry, such as varnishes, adhesives, cleaning agents, dampening solutions, UV inks etc, are as well subject to European legislation on dangerous substances, which will be replaced by REACH.

Printing companies

Printed products can be produced by several different printing processes. The choice will depend on the substrate, the character of the printed product and the number of copies (run length). Printers have to respect several European and national regulations as well as additional requirements resulting from voluntary technical, commercial or organizational schemes. These range from EMAS (Environment Management Auditing Systems) to ISO standards or eco labels to professional best practices and public procurement requirements.

- > **Environmental protection.** This includes for instance protective measures about air emissions, waste management, discharge of waste water, smell, energy, storage, environmental liability.
- > **Health and safety** in the company. This refers to protecting workers from risks coming from the equipment or from the products used.
- > **Quality standards** for print production, such as ISO 12647, lead to cost efficiency and a consistent high quality in each job. The standardisation process identifies quality issues in the different stages of production and ensures a smooth production workflow.
- > **Commercial relationship with customers.** This includes measures in case of bad debts, protection of intellectual property rights, e-auctions, etc.
- > **Relationship with workers.** This refers to requirements for employment contracts, the respect of legal or agreed working time, insurance schemes, training etc.

*Several of these commitments are summarized in “**industrial permit**” for which companies apply to their authorities. The specifics of the permit will depend on the size of the company and on the nature of the equipment used. In the printing industry the use of a specific printing technology determines several precise requirements.*



Overview of different printing processes

The production of printed products comprises three distinct phases:

- > Pre-press, ie all operations from keying in of data and generation of image data up to preparation of the printing plate to be positioned on the printing press;
- > The actual printing phase;
- > Binding and finishing operations.

A. PRE-PRESS

Pre-press activities have benefited from many technological developments, which paved the way for digital image data processing. They include digital cameras able to convert the raw data from the image sensor into a colour-corrected image in a standard image file format. Images from digital cameras often receive further processing to improve quality or adapt it to cross-media communication applications. The digital image processing is done by special software programs that can manipulate the images and text in many ways. New standards in colour management allow for consistent reproduction quality and better reliability of proofs.

The development of modern digital technology also reduced the environmental impact of pre-press activities significantly. Direct imaging of “image carriers”, such as printing plates in offset printing or printing cylinders, is now widely used in many printing processes. It makes the use of film with all its environmental requirements superfluous. The best known among these technologies is CTP (Computer to plate) in offset printing. However, “image carrier” materials, ranging from plates, coating materials etc, are generally regarded as “special waste”, which has to be treated according to the European legislation on landfilling of waste and legislation on the environmental impact of waste combustion plants.

In the field of publication gravure printing the latest innovations come from laser-based engraving processes of the cylinders. Digital data are transformed directly into precise micro structuring of printing formes by laser. It can be performed at high speed and with maximum reproducibility.

B. PRINTING

1. Offset

Is a widely-used printing process because of its versatility, speed, quality and general cost-effectiveness across a wide range of printed products. It has two different processes:

- > **Sheetfed offset** is the most widespread printing process used for the production of a wide variety of printed products, in many different formats, in a multitude of colours, and with many different finishing options. Sheetfed offset is very versatile in the substrates that can be printed, including high quality paper and board. Typical products are advertising print, company reports, greeting cards, calendars, brochures, leaflets, some high quality packaging, and posters. With a very wide range of printing presses and levels of automation, there is a correspondingly wide range of print runs (number of copies) that can be printed cost-efficiently using sheetfed offset.
- > Sheetfed offset is not considered to have a significant impact on the environment, and it is therefore currently not covered by European legislation for air emissions. After printing, the ink dries naturally and emits hardly any VOC (Volatile Organic Compounds) gas emissions into the air. However, alternative inks, often called “eco-inks”, which are not based on organic solvents but on vegetable oils, are also available to printers.
- > Sheetfed presses are designed to be very cost-effective and range from relatively simple machines to highly automated ones. Any manual tasks performed on these presses are covered by very comprehensive health and safety protection measures, ie in the paper feeding phase and in the cleaning phase.

> **Web offset** is the offset printing process used for longer print-runs, as the paper comes off a roll – called the web – and is passed through the press, to be cut and folded at the end of the machine. There are two techniques used, coldset and heatset offset.

+ **Coldset offset** is the typical printing process for newspaper printing. It requires absorbing paper qualities, such as “newsprint” and similar paper. Coldset offset presses are also used for some advertising sheets, paperback books and telephone directories. Coldset does not require any artificial drying phase, and therefore has only very low VOC emissions.

+ **Heatset offset** is generally used for printing runs between 5000 and 250,000 copies and above. It provides high quality colour printing with the possibility of using all high quality paper grades and some board grades. It is used for advertising literature, catalogues, company reports, calendars, brochures, leaflets, and magazines.

Because of the high speed of paper passing through the press, inks need to be dried, and the VOC waste gases emitted during drying are eliminated by high-performance incinerators. Heatset offset printing companies work hard to minimise the impact on the environment in general. In this way all relevant legislation is honoured. They fall under industrial installations requiring a high number of protective measures, which are defined in an “environment permit”. Both coldset and heatset presses are equipped with automatic washing units, which ensure high efficiency in the use of washing solutions and constant high quality of printed products. This automation also reduces manual contact with cleaning agents for the work force.

> In view of global requirements placed on environmental standards, **offset printing plants** are also paying special attention to reducing some additional sources of emissions:

- + Special control equipment enables to reduce the quantity of isopropanol, an alcohol-based ingredient of dampening solutions. The latter is needed, together with water to make non-printing areas reject ink, the basic principle of offset printing.
- + Reducing emissions from cleaning agents. This is achieved through using less volatile solvents in cleaning agents.



2. Publication gravure printing

This process is used for printing jobs with large circulations such as magazines and catalogues and it represents some +/- 25% of printing activities throughout Europe. However, not all countries have gravure printing plants. This process can use very low grammage paper qualities while reaching good optical results. It has also good format variability, according to requirements for the final product. Paper qualities commonly used are LWC (light weight coated) and the super callendered grades.

Gravure printing uses an engraved cylinder as printing forme and relatively liquid inks. The inks are kept liquid by a precise proportion of a very powerful solvent, toluene, while respecting regulations applicable to its use. Gravure presses are totally encapsulated. Directly after printing, the paper is dried and vapours containing toluene residues are recovered and re-used. Very efficient vapour recovery units enable a recovery rate over 95%. The toluene traces remaining in the printed product have been significantly lowered in the recent years. This was mainly achieved through the development of inks which let the solvent nearly completely evaporate in the printing press dryer. The toluene traces are in any case below 0,04%.

Relationship with the neighbourhood

Printing companies work hard to make sure the neighbouring areas are well protected. Measures are taken to prevent smell and noise resulting from industrial activities. Larger installations also have to pay attention to the prevention of environmental accidents. In the case of printing companies this obligation particularly refers to the storage of flammable products.

3. Digital printing

Digital printing is the direct transfer of a digital image or text onto a substrate, such as paper, foil, carton, etc. In contrast to offset printing,

- > Every impression made onto the paper can be different, as opposed to large runs of a single printing job.
- > It integrates well with other media.
- > It is excellent for rapid prototyping, or small print runs which means that it is more accessible to a wider range of designers, and opens the field to the personalization of communication messages.
- > Cost-efficient print runs start at very low numbers of impressions, but they are by no means restricted to small runs.
- > It produces little waste in terms of paper and chemicals used. The ink or toner does not absorb into the paper, as does conventional ink, but forms a layer on the surface.

4. Hybrid printing

Hybrid processes combine traditional full-colour printing and monochrome digital systems, and offer an economical and manageable means to combine the flexibility of digital printing and the pure printing properties of offset. It is designed to compete in the short-run, print-on-demand market. Further opportunities for variable-data techniques are also seen in the field of commercial printing.



5. Other printing techniques

There are a number of other printing processes, which are well adapted to specific market segments:

- > Flexography is the major process used to print packaging materials. Flexography is used to print corrugated containers, folding cartons, paper sacks, plastic bags, milk and beverage cartons, disposable cups and containers, labels, adhesive tapes, envelopes. It is also suitable for newspaper and wrapping paper printing.
- > Screen printing is a very versatile technique. The surface does not have to be printed under pressure, and it does not have to be planar. Screen printing inks can be used to work with a variety of materials, such as textiles, ceramics, wood, paper, glass, and plastic. As a result, screen printing is used in many different industries, from clothing to product labels to circuit board printing.
- > Among various new techniques that have become available to dry or "cure" printing inks, UV (Ultra Violet) and EB (Electron Beam) technologies are proving to be very successful, both for their economic benefits and their environmental performance. They are used primarily in offset, flexo and screen printing. UV and EB curing mean: high speed drying and immediate availability of printed materials, no solvent emissions and lower energy use in the drying process. Adequate health & safety, as well as waste management guidelines for these techniques are in place.
- > UV technology is also used in the production of plastic cards (credit cards, etc.) and in the application of varnishes and lacquers onto printed products.



C. FINISHING

Finishing activities involve distinct operations: folding and cutting of sheets, print enhancing techniques and binding. Commercially produced books tend to be bound according to one of the three categories:

- > A **hardcover** or **hardbound** book has rigid covers and is stitched in the spine. Looking from the top of the spine, the book can be seen to consist of a number of signatures (*sets of pages*) bound together. The covers of modern hardback books are of thick cardboard.
- > A **paperback** or soft cover book consists of a number of signatures or individual *leaves* between covers of much heavier paper or board, glued together at the spine with strong flexible glue. This is sometimes called perfect binding. (this is not a different category, as using hotmelt or cold or dispersion glue does not make the book any different).
- > **Spiral binding** or **coil binding** is commonly used for atlases and other publications where it is necessary or desirable to be able to open the publication back on itself without breaking the spine.

In commercial bookbinding, book covers can be decorated or finished in a variety of ways, by gold blocking in a hot stamping press, or by embossing, laminating or any number of other techniques.

The concept of legislation applicable to finishing operations is quite similar to requirements made on printing, introducing wherever needed specific requirements on operations and products.

Waste paper recovery and recycling

The European printing industry is a partner in the paper chain, both at European and national level, and contributes to developing best practices for an efficient recovery and recycling of end of life printed products.

The latest state of the art in this field can be found in the 2006-2010 European Declaration on Paper Recycling. (*More information can be found at www.intergraf.eu and at www.cepi.org.*)

Customer relationship

The customer relationship is governed by legal initiatives, both by national or European legislation as well as by sectoral professional initiatives.

A. The commercial legal framework

The legal framework applying throughout the EU to commercial business is highly transparent.

Intellectual property rights

European commercial activities are ruled by the fundamental principle of **intellectual property (IP)**. This is an umbrella term for various legal entitlements, aiming at protecting the ownership of names, written and recorded media, inventions, patents, commercial ownership, etc. The holders of these legal entitlements may exercise various exclusive rights in relation to the subject matter of the IP. The term *intellectual property* reflects the idea that a subject matter is the product of the mind or the intellect, and implies that intellectual works are analogous to physical property. This applies in the field of printed communication media to the fact that the printer is entrusted with the task of reproducing or handling data files, while the publisher or the responsible printbuyer keeps full ownership of his document.

The latest European Commission initiative is the 2nd "Intellectual Property" Rights Enforcement Directive (IPRED2).

Debt management : The EC Directive on Late Payment

The EU Directive was introduced by the European Commission on 29th June 2000. The Directive provides all businesses, regardless of size, with the right to claim automatically interest on late payment. A statutory right to interest (SRI) is set at a rate of at least seven per cent over the European Central Bank base rate for Eurozone area countries. European countries outside the Eurozone will use their own national bank rate. Several Member States have introduced similar schemes at national level.

International accounting standards (IAS)

The European Union adopted harmonisation requirements for the financial statements of listed companies in order to guarantee the protection of investors and ensure transparency about their financial situation. This contributes positively to the credibility, perception, and competitive position of European companies.

Sectoral good practices

> **General sales conditions.** In most European countries the relevant trade associations developed agreed sales conditions, which apply to all companies. They define conditions for the delivery of products or services by printing companies and apply to all requests for orders, contracts and other legal relationships, so far as no other specific agreements are stipulated. They ensure transparency and predictability for customers.

> **Guidance in e-auctions.** Printing companies endeavour to adapt to new trends in commercial practices. Printers are increasingly partners in e-Commerce and in e-Auction schemes. Printers want however to draw the attention of their customers to some key consideration in applying e-auctions to printed products. Guidelines were made available by Intergraf, which explain the basic information parameters necessary to ensure fair and transparent quotations. *(More information can be found on www.intergraf.eu)*

Relationship with employees

The European printing industry has a long established tradition of maintaining contacts and negotiating sectoral labour agreements with trade unions. Collective Agreements ensure fair and transparent rules on working conditions (working time, holiday entitlement, training schemes etc.) and on wages. The European Union adopted several regulations, which create a general adequate and responsible labour environment. These measures include:

- > the “Statute for a European Company” with regard to the involvement of employees, the obligation to inform employees about conditions applicable to their employment contract,
- > European Directives on the exposure of workers to the risks arising from physical agents (noise, vibration), from chemical agents at work (leading to exposure limit values), on the need for health signs at work, on provisions about computer screen work,
- > the European Directive on working time, fix-term work, parental leave, on the protection of young people at work,
- > the European Directive on collective redundancies, on the need of trade unions representation, and need of informing and consulting employees in Community-scale companies,
- > a European Declaration on the protection of dignity of women and men at work, ie code of practice to combat sexual harassment.

These agreements fully respect ILO regulations, and also include more innovative policies, such as parental leave or consultations with the work force on co-operating towards the competitiveness of the sector. Other recent items for joint discussions and common agreement are insurance or pension schemes.

Modernizing training schemes and curricula in order to adapt them to the requirements of modern technology and customer demands is a priority for employers and trade union representatives at national level and European level when appropriate.

Priorities for the future

The future policy areas to which printing companies will devote attention include a maximum of efforts towards sustainability objectives and the encouragement of further innovation. Printing companies are keen to co-operate with *suppliers in both areas*.

In the field of environmental protection, printing companies will further commit themselves towards proving, for instance, performance in the field of custody chains, carbon footprint for printed products, energy efficiency of their buildings etc.

Regarding the print offer, innovations can be expected from new materials enhancing printed communication as well as from further digitalization.

Printers feel confident that these objectives will contribute to enhance their image and ensure the satisfaction of their customers.

This document provides an overview of significant issues, without however being exhaustive. Please contact Intergraf for further details or supporting data.

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