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The UK shadow committee for the ISO TC130 graphic technologies

The main standards for printing and graphic arts

Introduction

This table of the ISO standards for the printing and graphic arts sectors is aimed to provide an overview of the main standards for this sector, together with examples of standards which 'behind the scenes' in our systems and applications. These include standards on colour management, PDF specifications, instrumentation and colour exchange files and many, many more.

The ISO TC130 for graphic technology has developed over 90 ISO standards, with more in devolvement including areas such as extended colour gamut printing.

In addition, many other ISO technical committee's work on standards which are used by the graphic arts sector including the Business resilience and Business process areas listed immediately below and Document format standards, TC170, which now control areas such as PDF specifications in ISO 32000 parts 1 and 2.

This document has been prepared by members of the BSI/PAI 43 printing standards committee, the UK's shadow committee to ISO's international TC130 committee for producing and reviewing graphic technology standards.

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The listing is should not be considered complete. It will be updated on a regular basis.

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Business resilience.

Standard	*Title*	*Purpose*	*Use case*
ISO 22301	Security and resilience	Specifies requirements to implement, maintain and improve a management system to protect against, reduce the likelihood of the occurrence of, prepare for, respond to and recover from disruptions when they arise.	A certifiable standard that printer may need and may be required of them by clients.
ISO 45001	Occupational Health and Safety	To improve employee safety, reducing workplace risks and creating better, safer working conditions.	A certifiable standard that printer may need and may be required of them by clients.
ISO 31000	Risk management	Provides a level of reassurance in terms of economic resilience, professional reputation and environmental and safety outcomes.	A certifiable standard that printer may need and may be required of them by clients.

Business process.

Standard	*Title*	*Purpose*	*Use case*
ISO 9001	Quality management	Improve the quality of products and services and consistently meet customers' expectations.	A certifiable standard that printer may need and may be required of them by clients.
ISO 14001	Environmental management	Practical tools to manage a company's environmental responsibilities and aims.	A certifiable standard that printer may need and may be required of them by clients.

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ISO 27001	Information technology-security	Provides the overview of information security management systems (ISMS).	A certifiable standard that printer may need and may be required of them by clients.

ISO TC130 standards.

Standard	*Title*	*Purpose*	
ISO 12647-Parts 1 to 9	Process control for the production of half-tone colour separations, proof and production prints for most analogue printing methods and digital contract proofing	Specifies a number of process parameters and their values to be applied when producing colour separations, printing formes and print production for four-colour sheet-fed, heatset web offset printing, coldset wed offset, gravure, screen process, flexographic, metal decoration and digital contract proofing.	A certifiable standard that printer may need and may be required of them by clients.
ISO 12642-1	Graphic Technology - Input Data For Characterization Of Four-Colour Process Printing Part of a range of standards in the colour management area	Defines an input data file, a measurement procedure and an output data format for use in characterizing any four-colour printing process.	Used by developers of colour profiling systems.
ISO 13655	Spectral measurement and colorimetric computation for graphic arts images	Procedures for the measurements and colorimetric computations appropriate to objects that reflect, transmit and emit light, such as flat-panel displays.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO 15311-1	Print quality requirements for printed matter-part 1: Measurement methods and reporting schema	Defines print quality metrics, measurement methods and reporting requirements for printed sheets that are suitable for all classes of printed products.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO 16759	Quantification and communication for calculating the carbon footprint of print media products	Specifies the requirements for quantifying the carbon footprint of those processes, materials and technologies required to produce print media products using any form of printing technology and that are within the user's knowledge and control.	
ISO 19301			

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	Graphic technology — Guidelines for schema writers — Template for colour quality management	This document provides a framework that organisations can follow, and that can be used as the structure for market or sector specific schemes. It is intended to be a process certification. The goal of this document is to have comparable attestations or certifications worldwide. It is based on the BPIF Colour Quality Scheme.	Used to develop print and colour quality schemes for certification.
ISO 19302	Graphic technology — Colour conformity of printing workflows	This document defines the requirements of printing workflows and evaluation methods for their tone and colour reproduction. It applies to any printing process using any colourant, such as CMYK, CMYK with spot, non-CMYK, spot only or multicolour. This document refers and points to international or national standards and can be used to define, evaluate and audit any printing workflow in whole or in part.	Used to develop print and colour quality schemes for certification.
ISO 15930 Parts 1-9	Graphic technology — Prepress digital data exchange using PDF	A range of standards on PDFs for print production based on PDF X variants.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO/TS/ 23031	Graphic technology-Assessment and validation of the performance of spectrocolormeters and spectrodensitometers	This document describes procedures for the assessment and validation of the performance of an optical spectrometer intended for use in capturing the spectral reflectance factor or the spectral radiance factor of printed areas comprised of non-fluorescent or fluorescent materials, respectively. While it does not describe the application to transmitting materials directly, many of the procedures can be applied to transmitting systems by backing them with a reflective white backing material.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO 15076-1	Image technology colour management — Architecture, profile format and data structure —Based on ICC.1:2010	Specifies a colour profile format and describes the architecture within which it can operate. This architecture supports the exchange of information which specifies the intended colour image processing of digital data. The required reference colour spaces and the data structures (tags) are also specified.	Used by developers of colour management and ICC profile creation software.

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ISO 18619	Image technology colour management — Black point compensation	Black point compensation (BPC) is a technique used to address colour conversion problems caused by differences between the darkest level of black achievable on one device and the darkest level of black achievable on another. This procedure was first implemented in Adobe Photoshop in the late 1990s. The International Color Consortium (ICC) and ISO Technical Committee 130 (Graphic technology) have created this document to allow black point compensation to be used in a consistent manner across applications	Used by software developers in the colour management areas.
ISO/TS/21830	Image technology colour management — Black point compensation for n-colour ICC profiles Image technology colour management — Black point compensation for n-colour ICC profiles	The xCLR ICC profiles that are used in digital printing applications are often CMYK ICC profiles extended with red, orange, green, blue and/or violet colourants. Hence there is a need to specify black point compensation (BPC) for a well-defined class of xCLR ICC profiles, where xCLR refers to a device-dependent colour space defined in ISO 15076-1 and ICC.1:2001-04, specified for 3 to 15 device colourants wherein the value of x is a hexadecimal digit within the range 3 to F inclusive. Such xCLR ICC profiles are also commonly referred to as n-colour profiles.	Used by software developers in the colour management areas.
ISO/TS 10128	Graphic technology — Methods of adjustment of the colour reproduction of a printing system to match a set of characterization data	Specifies three methods for the adjustment of the digital content data that is input to a printing system to achieve consistency in the printed results among a number of presses printing to the same general aim conditions. These three methods are generally identified as 1. the matching of tone value curves, 2. the use of near-neutral scales, and 3. the use of CMYK to CMYK multi-dimensional transforms.	Used in with ISO 12647 in process control by software vendors and printers.
ISO/TS 18621-31	Graphic technology — Image quality evaluation methods for printed matter —Part 31: Evaluation of the perceived resolution of printing systems with the Contrast–Resolution chart	Part of a large number of standards on image quality evaluation methods	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.

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ISO 3664	Graphic Technology And Photography - Viewing Conditions	Specifies viewing conditions for images on both reflective and transmissive media, such as prints (both photographic and photomechanical) and transparencies, as well as images displayed in isolation on colour monitors.	Useful when considering investment in this area to check is the vendors comply.
ISO 12646	Graphic technology — Displays for colour proofing — Characteristics	This International Standard specifies requirements for two conformance levels for the characteristics of displays to be used for soft proofing of colour images. Included are requirements for uniformity and variations of electro-optical properties with viewing direction for different driving signals.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO/TS/14861	Graphic technology — Requirements for colour soft proofing systems	As the use of soft proofing increases, the need for an objective and vendor neutral assessment of soft proofing systems is steadily increasing. This International Standard specifies requirements for systems that are used to produce, from digital data, images on electronic displays that are intended to simulate a characterized printing condition defined by a set of characterization data and spot colours defined by a physical reference. This International Standard builds on the monitor requirements defined in ISO 12646, the viewing cabinet defined in ISO 3664, and the requirements for contract hard copy proofing defined in ISO 12647-7.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO 12635	Graphic technology — Plates for offset printing — Dimensions	This International Standard stipulates dimensional properties of printing plates for offset printing. While not all present plate dimensions will conform to this International Standard, the specifications for dimensions serve as an effort to reduce the multitude of possible formats to a reasonable level that simplifies manufacture and communications between plate, platesetter and press manufacturers, and the printer.	
ISO 21632	Graphic technology — Determination of the energy consumption of digital printing	This document provides directions for measuring any format of digital production press, whose modes, other than production printing mode,	Used by press vendors.

	devices including transitional and related modes	play a significant role in the comprehensive energy consumption. This document can be used to compare the energy efficiency figures for different machine set ups: best quality (slowest), highest-productivity (fastest) or other alternative combinations.	
ISO 20616 Parts 1 and 2	Graphic technology — File format for quality control and metadata	ISO 20616 defines standard XML schemas designed to enable the digital exchange of print quality data and metadata between trading partners within the graphic arts supply chain. In the past, a number of different non-standard data formats have been used to communicate print quality metrics. It is a general observation that many of these existing non-standard data formats describe similar types of information. Existing standard data formats cover either too much or too little scope to address industry requirements. Hence, there is an industry need for a single, standard concise set of data formats for the communication of print quality.	Used by hardware and software vendors in this area. Useful when considering investment in this area to check is the vendors comply.
ISO 2846	Graphic Technology. Colour And Transparency Of Printing Ink Sets For Four-Colour Printing. Coldset Offset Lithographic Printing	Specifies the colour and transparency to be produced by inks intended for four-colour coldset web offset printing when printed under specified conditions on a printability tester. It also describes the test method to ensure conformance.	If printing to ISO 12647 Part 2 or 3 the CMYK inks need to meet this standard.
ISO 16759	Graphic technology — Quantification and communication for calculating the carbon footprint of print media products	Specifies the requirements for quantifying the carbon footprint of those processes, materials and technologies required to produce print media products using any form of printing technology and that are within the user's knowledge and control. It is based on a Life Cycle Assessment (LCA) approach, using defined system boundaries and a specified functional unit as the basis for complete or partial carbon foot printing studies. This data can be referenced throughout supply chains for individual print media products.	
ISO 20294	Graphic technology - Quantification and communication for calculating the carbon footprint of e-media	This document specifies the requirements for quantifying the carbon footprint of those processes, materials and technologies within the user's knowledge and control that are necessary for the delivery and use of e-media. It covers requirements to account for e-media archiving,	This data can be referenced throughout supply chains for individual e-media products. This document is applicable to a carbon footprint of a product

		distribution, use and storage. It is based on a life cycle assessment (LCA) approach, using defined system boundaries and a specified functional unit as the basis for complete or partial carbon footprinting studies.	(CFP) study of e-media regarding contents and e-media devices.
ISO 21632	Graphic technology — Determination of the energy consumption of digital printing devices including transitional and related modes	This document provides directions for measuring and calculating the electricity consumption of any format of digital production press, whose modes, other than production printing mode, play a significant role in the comprehensive energy consumption. It excludes digital presses designed to print substrates other than paper or plastic and conventional printing presses fitted with digital inkjet printing heads. It can be used to compare the energy efficiency figures for different machine combinations: best-quality (slowest), highest-productivity (fastest) or other alternative combinations.	
ISO 5776	Graphic technology - Symbols for text proof correction	This International Standard specifies symbols for use in copy preparation and proof correction in alphabetic languages and in logographic languages. It is applicable to texts submitted for correction, whatever their nature or presentation (manuscripts, typescripts, printer's proofs, etc.), and for marking up copy for all methods of composition.	
ISO 12643 Parts 1- 5	Graphic technology — Safety requirements for graphic technology equipment and systems	ISO 12643 parts 1-5 are a series of type 'C' standards which provide safety specifications for the design and construction of new equipment used in the corrugated board, package printing, converting and graphic technology industries. ISO 12643 consists of the following parts: • Part 1: General requirements • Part 2: Prepress and press equipment and systems • Part 3: Binding and finishing equipment and systems • Part 4: Converting equipment and systems • Part 5: Stand-alone platen presses In the UK, ISO 12643 parts 1-5 are a replacement for BS EN 1010.	Used to ensure that all current and future equipment, purchased or in place meets the latest safety requirements.

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