INTERNATIONAL STANDARD

ISO 12637-1

First edition
2006-02-01

Graphic technology — Vocabulary —

Part 1: **Fundamental terms**

Technologie graphique — Vocabulaire —

Partie 1: Termes fondamentaux

Reference number
ISO 12637-1:2006(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12637-1 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

ISO 12637 consists of the following parts, under the general title *Graphic technology — Vocabulary*:

— *Part 1: Fundamental terms*

— *Part 5: Screen printing terms*

The following parts are under preparation:

— *Part 2: Prepress terms*

— *Part 3: Printing terms*

— *Part 4: Postpress terms*

Introduction

Documentation gives rise to numerous international exchanges of both intellectual and material nature. These exchanges often become difficult, either because of the great variety of terms used in various fields or languages to express the same concept, or because of the absence of, or the imprecision of, useful concepts.

To avoid misunderstandings due to this situation and to facilitate such exchanges, it is advisable to select terms to be used in various languages or in various countries to express the same concept, and to establish definitions providing satisfactory equivalents for the various terms in different languages.

The purpose of this part of ISO 12637 is to provide definitions in English that are rigorous, uncomplicated and which can be understood by all concerned. The scope of each concept defined has been chosen to provide a definition that is suitable for general application within graphic technology. Graphic technology includes the processes of design through the final printed product. In those circumstances, where a restricted application is concerned, the definition may need to be more specific. Additional definitions are included where necessary to exemplify the terms shown in Figure 1.

The intention of this part of ISO 12637 is to define fundamental terminology due to the enormous changes brought about by digital processes/methods within the graphic field.

Present technology is addressed to traditional printing systems and processes while the model proposed in the following pages contemplates the peculiarities of the new technologies as well.

Graphic technology has been divided into three workflow stages: prepress, printing and postpress.

In prepress, analog and digital technologies begin with original design concepts and end up with the preparation of image carriers that can be validated by proofing.

The distinction between reprographic and printed copies of original images, based mainly on qualitative criteria, has been substituted by the presumption that all graphic original reproduction methods can be considered printing processes.

With a view to creating a structure that can include all present graphic systems and processes/methods and adapt itself to the needs of future technologies, without becoming rapidly obsolete, ISO 12637 separated printing systems into three groups according to the techniques employed in each and every one and established parameters so as to determine the relationships of the various processes/methods to their respective systems.

The first group, called “forme-based printing technology”, includes the so called traditional or conventional processes/methods that use inked formes to reproduce original images onto substrates.

The second group, called “formeless printing technology”, dispenses with those specific image carriers and uses ink-jet, thermal-transfer and electrographic systems to reproduce original images onto substrates.

The third group, named “inkless printing technology”, does away with image carriers and printing inks and employs specially prepared substrates and chemical or physical reactions produced by various ways of applied energy to reproduce original images on their surface.

In the postpress stage of this part of ISO 12637, finishing is considered a technology, whose systems are responsible for the general surface properties of blank and printed substrates and their definite sizes.

Converting is viewed as a technology whose systems are capable of transforming the purely physical form of blank and printed substrates into consumer products.

The fundamental terms deal specifically with the workflow stages of graphic technology and its final product, hard-copy printed matter. Digital processes/methods and virtual images are considered only as intermediate by-products.

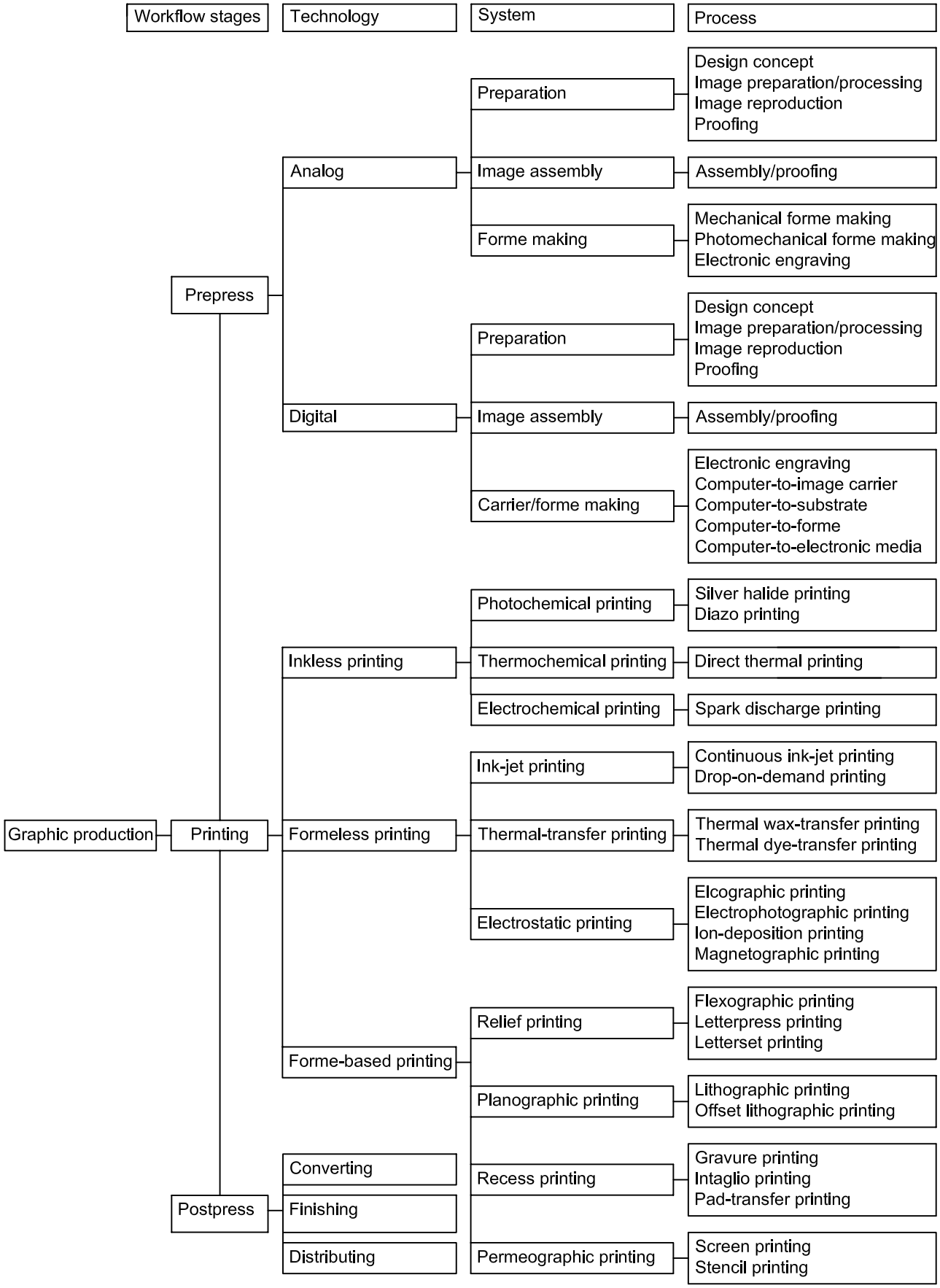

Figure 1 — Structure of fundamental terms

Graphic technology — Vocabulary —

Part 1:
Fundamental terms

Scope

This part of ISO 12637 defines a set of fundamental terms that can be used in the drafting of other International Standards for graphic technology. In order to facilitate their translation into other languages, the definitions are worded so as to avoid, where possible, any peculiarity attached to one language. The entries in this part of ISO 12637 are arranged alphabetically.

Terms and definitions

1
analog technology
representation, transmission and reproduction of visual data in unbroken succession, such as in continuous-tone art, films and photographic images

NOTE In common practice, analog processes (sometimes called conventional processes) are differentiated from digital methods, as their original images are computed and written only once to produce reuseable physical carriers in forme-based printing technology.

2
assembly
⟨analog⟩ prepress process used to join photographic negatives or positives of individual image elements into film flats following layout and imposition directives to reproduce images in forme-based printing technology

3
assembly
⟨digital⟩ prepress process used to place all original texts and illustrative material in their proper position according to layout directives, within a digital page file to reproduce images by forme-based, formeless, and inkless printing technologies

4
computer to electronic media
process in which computers store original image data for reproduction onto any kind of substrate

5
computer to forme
process in which computers interface with printing formes to reproduce original images onto substrates

6
computer to image carrier
process in which computers interface with image carriers to reproduce original images onto substrates

7
computer to substrate
process in which computers interface with substrates to reproduce original images onto their surfaces

8
continuous ink-jet printing
formeless process using high-frequency vibrations to break up a stream of liquid ink into electrostatically charged droplets deflected and positioned by electric fields controlled by digital data, to reproduce images directly onto a substrate

9
converting
technology using systems including die-cutting, gluing, binding and other methods, to create consumer products other than plain blank or printed substrates

10
design concept
prepress process used to convert a visual message addressed to a target audience into an original, following briefing directives and the requirements of graphic production

11
diazo printing
inkless photochemical process using substrates, coated with non-silver light sensitive compounds, and exposed by ultraviolet illumination through transparencies of image areas, that are developed either by heat or by ammonia vapours

12
digital technology
representation, transmission and reproduction of visual data in discrete steps, such as in half-tone art, films and photographic images

NOTE In common practice, digital processes are differentiated from analog methods as the number of times their original images are computed and rewritten is identical with the number of their printed copies, reproduced in forme-based, formeless, and inkless technologies.

13
direct printing
image transfer from an image carrier to a substrate

14
distributing
technology using systems used to label, wrap and transfer printed products to their destination, employing on-line or off-line processes

15
drop-on-demand printing
formeless process using mechanisms controlled by digital data, to expel only the ink droplets required to reproduce image areas onto a substrate

16
elcographic printing
formeless process that uses an electrolytic mechanism controlled by digital data, to coagulate polymeric inks and develop original images on a cylinder that transfers them onto substrates by cold pressure

17
electrochemical printing
system using chemical reactions induced by electrical energy controlled by digital data, to reproduce images from digital data onto specially coated substrates using processes such as spark discharge printing

18
electronic engraving
process that uses optical or mechanical means to generate image and non-image areas onto relief or recess printing formes

19
electrophotographic printing
formeless process using photoconductive, electrostatically charged image carriers where the latent image (based on either analog or digital data) is created by exposure, made visible by the use of electrophotographic ink, transferred and fused onto a substrate

20
electrostatic printing
system employing electrostatically charged image carriers or specially coated substrates to reproduce images in latent form made visible by the use of electrographic ink using processes such as electrophotographic, ion deposition or magnetographic printing

21
file transmission
information transfer using various methods to move digital data between locations

22
finishing
technology using systems including cutting, trimming, embossing and other methods to create, enhance and preserve tactile and visual surface qualities of blank and printed substrates and to determine their form and dimensions

23
flexographic printing
forme-based process/method using flexible relief formes where the raised inked areas reproduce images onto a substrate with either high or low viscosity solvent-based or water-based inks

24
forme
physical image carrier of a forme-based printing process, capable of reproducing only the image areas of the original to which it was initially exposed

NOTE Examples of formes are gravure image cylinders, lithographic plates and screen stencils.

25
forme-based printing
technology employed in the reproduction of originals whose inked images are transferred directly or indirectly from formes onto a substrate using relief, planographic, recess or permeographic systems

26
formeless printing
technology employed in the reproduction of originals whose inked images are transferred directly, or indirectly onto a substrate without the necessity of printing formes using systems, such as ink-jet, thermal-transfer and electrostatic printing

27
forme making
prepress workflow stage for the production of printing formes specific to each printing process, nature of original images to be reproduced, type of presses, ink properties and substrate quality as well as pressrun lengths

NOTE Forme imaging can be processed by various technologies, using either conventional photomechanical or electronic page information or combinations of both.

28
graphic production
branch of industrial technology that deals with the production of graphic products and consumer goods

29
graphic technology
application of technologies, systems and processes or methods to carry through the prepress, printing and postpress stages of workflow for the production of printed matter

NOTE Graphic technology replaces the former term graphic arts.

30
gravure printing
forme-based process using formes which are plated cylinders or wraparound plates where the image areas are recessed below the non-image areas producing microscopic cells from which ink is transferred directly to a substrate

NOTE Gravure printing is an intaglio process where the cells can have various width, depth and frequency characteristics.

31
image
retinal pattern formed by light reflected or transmitted by external stimuli, whose impression is completed by the physiological mechanisms and mental processes that affect visual perception

NOTE The term is commonly used in graphic technology to identify any picture, drawing, illustration, graphic, text or other reproduction, visible to the human eye, that portrays the original in the proper form, colour and perspective.

32
image assembly
workflow stage for combining and positioning the various image elements of a page before proofing or printing

33
image carrier
physical device capable of transferring the visual information of original images to be printed

NOTE Image carriers may be printing formes, intermediate elements, electronic media, films, etc.

34
image preparation
⟨analog⟩ prepress analog process/method (called mechanical or paste-up) used to prepare, integrate and assemble original texts and illustrative material for making films suitable for the chosen printing technology and postpress production of the printed substrates

NOTE This is also known as art, artwork or copy preparation.

35
image preparation
⟨digital⟩ prepress digital process used to integrate, prepare and assemble original texts and illustrative material into a print-ready electronic file (called master copy), suitable for the chosen printing technology and postpress production of the printed substrates

36
image processing
⟨analog⟩ prepress analog process that uses retouching, opaquing, registering and colour correcting operations to alter or improve the quality of photographic negatives or positives for forme making

37
image processing
⟨digital⟩ prepress digital process to alter or improve the quality of an image by manipulation, retouching and enhancement, using specific hardware devices and software programs

38
image reproduction
⟨analog⟩ prepress process that uses photomechanical technology to produce photographic negatives or positives of colour and black and white line and continuous-tone originals for film assembly

39
image reproduction
⟨digital⟩ prepress process used to convert analog image information into digitized data for storage, processing and output display and reproduction

40
indirect printing
image transfer from an image carrier to a substrate by means of an intermediate element

41
ink-jet printing
system in which a stream of microscopic ink droplets controlled by digital data, projects image areas onto a substrate using processes such as continuous or drop-on-demand printing, using thermal or piezoelectric techniques

42
inkless printing
technology employed in the reproduction of originals whose latent image areas are made visible on specially prepared substrates, by means of chemical or physical reactions produced by some form of applied energy, such as light, heat or electricity, using photochemical, thermochemical or electrochemical printing systems

43
intaglio printing
forme-based process using formes which are rigid flat or wraparound plates where the image areas are etched or engraved below the non-image areas producing lines and hatchings from which ink is transferred directly to a substrate

NOTE Intaglio describes the handwork necessary for the preparation of recessed non-image areas of woodcut and wood engraving printing formes, as well as the recessed image areas of copperplate printing formes.

44
ion-deposition printing
process using a stream of electrons controlled by digital data to project on the surface of a dielectric imaging cylinder latent image areas, made visible by toners that are transferred onto a substrate and fixed by cold fusion

45
letterpress printing
forme-based process using rigid relief formes where the raised inked areas reproduce images directly onto a substrate

46
letterset printing
forme-based process using rigid relief formes where the raised inked areas reproduce images indirectly onto a substrate

47
lithographic printing
forme-based process using formes, where ink receptive (oleophilic) areas and ink repellent (oleophobic) areas, reproduce images on a substrate

48
magnetographic printing
formeless process using recording heads controlled by digital data to create latent image areas on the surface of a magnetized drum, that are made visible by magnetic toners, transferred and fused permanently onto a substrate

49
mechanical forme making
process that uses a manual or automated machine tool to generate image and non-image areas onto relief or recess printing formes

50
offset lithographic printing
planographic printing process that reproduces images indirectly onto a substrate

51
original
starting point of an image reproduction process, realized through the use of a printing technology

NOTE Examples include both hardcopy and softcopy images.

52
pad-transfer printing
forme-based process whose inked image areas are transferred from engraved rigid flat or wraparound formes onto a substrate using a flexible pad that adapts itself to the surface of shaped objects

53
permeographic printing
system employing formes whose impenetrable nonimage areas and permeable inked image-carrying areas reproduce image areas onto a substrate using processes such as screen and stencil printing

54
photochemical forme making
process that uses photo-induced chemical reactions to generate image and non-image areas in forme-based printing technology

NOTE This has also been known as photomechanical forme making.

55
photochemical printing
system using photo-induced chemical reactions, to reproduce images onto photosensitive substrates using processes such as silver halide or diazo printing

56
planographic printing
system employing formes whose image carrying areas and nonimage areas situated on the same level, reproduce images on a substrate using processes such as lithographic and offset printing

57
postpress
third stage of graphic technology workflow including finishing, converting, and distributing systems that create finished consumer products

58
prepress
first stage of the graphic technology workflow, prior to printing, that includes all the operations necessary for the preparation of images and image carriers

59
printed material
hardcopy reproduction and permanent visible register of original images on a substrate by means of printing forme-based, formless and inkless technologies

60
printing
second stage of graphic technology workflow following prepress, which produces a hard copy reproduction that is a permanent, visible record of an image using forme-based, formeless or inkless printing technologies

NOTE This can result in a single copy or the mass production of hard copies.

61
proofing
⟨analog⟩ printing process used to simulate final image reproduction by means of on-press or off-press methods using photochemical, electrostatic or other technologies

62
proofing
〈digital〉 process used to simulate final image reproduction using ink jet, thermal transfer, electrostatic as well as other technologies, including "soft proofing" directly from colour monitors

63
recess printing
system employing formes whose recessed image-carrying areas, engraved into the initial surface that accounts for non-image areas, reproduce images on a substrate using processes/methods such as gravure, line engraving (intaglio) and pad transfer

64
relief printing
system employing formes whose raised image-carrying areas, obtained by lowering the surfaces that account for the non-image areas, reproduce images on a substrate using processes/methods such as flexographic, letterpress and letterset printing

65
reproduction
process of making one or more identical permanent, visible hardcopies of an original

66
screen printing
forme-based process using permeable openings in stencils formed by fabric or steel meshes stretched over frames, through which ink is forced by pressure to reproduce corresponding image areas onto a substrate

67
silver halide printing
inkless photochemical process that reproduces continuous-tone originals directly on photographic paper or film, using modulated light beams controlled by digital data, or indirectly by means of exposed silver halide coated donor materials that transfer and fix the images on a substrate

68
spark discharge printing
inkless direct electrochemical process employing electroerosion techniques controlled by digital data to burn through the aluminized surface of the topmost layer of a three-layer coated substrate revealing the black middle layer to reproduce images

69
stencil printing
forme-based permeographic process using formes where ink is forced through openings to reproduce images onto a substrate

70
thermal dye-transfer printing
formeless process using thermal print heads controlled by digital data and donor ribbons coated with dye-based colorants that sublime due to heating to reproduce images onto a coated substrate

71
thermal printing
inkless thermochemical process using a print head consisting of heated elements, controlled by digital data to reproduce image areas onto heat-sensitive substrates

72
thermal-transfer printing
system employing donor sheets or ribbons coated with wax based inks or coloured dyes that are transferred by heat and pressure produced by thermal printheads to reproduce images onto a coated substrate using thermal wax transfer and thermal dye transfer printing processes/methods

73
thermal wax-transfer printing
formeless process using thermal printheads controlled by digital data and donor ribbons coated with pigment-based coloured wax that melts and is transferred by pressure reproducing images onto a substrate

74
thermochemical printing
system using endothermic chemical reactions induced by electrical energy controlled by digital data to reproduce images onto specially coated substrates

Alphabetical index

ICS 01.040.37; 37.100.01

Price based on 9 pages